# *Contemporary Business Mathematics with Canadian Applications (Canadian) 12th edition Hummelbrunner Test Bank*

SKU: 9780135405871-TEST-BANK

Contemporary Business Mathematics with Canadian Applications (Canadian) 12th edition Hummelbrunner Test Bank

# Test Item File

**Asifa Aamir**
*University of Ontario Institute of Technology*

# Contemporary Business Mathematics with Canadian Applications
## Twelfth Edition

**S. A. Hummelbrunner**

**Kelly Halliday**
*Georgian College*

**Ali R. Hassanlou**
*Kwantlen Polytechnic University*

ISBN: 9780135406168

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***Contemporary Business Mathematics, 12e*** **(Hummelbrunner)**
**Chapter 1 Review of Arithmetic**

1) Simplify: (28 - 4)/3
Answer: (28 - 4)/3 = 24/3 = 8
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

2) Simplify: 8 + 6 ∗ 2
Answer: 8 + 12 = 20
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

3) Simplify: 5(4 + 3)
Answer: 5 ∗ 7 = 35
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

4) Simplify: $\frac{20 - 15}{15 + 5}$

Answer: 5/20 = .25
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

5) Simplify: $\frac{50 - 10}{12 + 8}$

Answer: 40/20 = 2
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

6) Simplify: 9(8 - 5) + 5(6 + 4)
Answer: 9 ∗ 3 + 5 ∗ 10 = 27 + 50 = 77
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

7) Evaluate: $\frac{268}{4400 * 156/366}$

Answer: 268/(4400 ∗ .4262295) = 268/1875.4098 = .1429021
Diff: 2 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.


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8) Evaluate and round to 3 decimal places: 125(6 + 0.35 ∗ 142/678)
Answer: 125 ∗ (6 + 0.35 ∗ 0.2094395) = 125 ∗ (6 + 0.0733038) = 125 ∗ (6.0733038) = 759.163
Diff: 2 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

9) Evaluate: 400(1 + .10 ∗ 100/365)
Answer: 400 ∗ (1 + .10 ∗ .2739726) = 400 ∗ (1 + .02739726) = 400 ∗ (1.02739726) = 410.959
Diff: 2 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

10) Evaluate and round to one decimal place: 9210(5 - 1.38 ∗ 169/420)
Answer: 9210 ∗ (5 - 1.38 ∗ 0.40238095) = 9210 ∗ (5 - 0.5552857) = 9210(4.444714) = 40,935.8
Diff: 2 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

11) Evaluate: $\frac{2424}{1 + .2 * 166/365}$

Answer: 2424/(1 + .2 ∗ .4547945) = 2424/(1 + .0909589) = 2424/1.0909589 = 2221.899
Diff: 2 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

12) Evaluate and round to three decimal places: $\frac{3140}{2 + 0.035 \times \frac{155}{730}}$

Answer: 3140/(2 + 0.35 * 0.2123288) = 3140/(2 + 0.0743151) = 2910/2.074315068 = 1513.753
Diff: 2 Type: SA Page Ref: 7-13
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

13) Evaluate: $\frac{5000}{1 + .1 * 183/366}$

Answer: 5000/(1 + .1 ∗ .5) = 5000/(1 + 0.05 ) = 5000/1.05 = 4761.90
Diff: 2 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.


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14) Spade Realty sold lots for $23 240 per hectare. What is the total sales value if the lot sizes, in hectares, were $2\frac{1}{2}$, $3\frac{1}{4}$, $4\frac{1}{5}$?

Answer: $23240 * (\frac{1}{2} + 3\frac{1}{4} + 4\frac{1}{5})$

= 23240 ∗ (2 10/20 + 3 5/20 + 4 4/20)
= 23240 ∗ (9 19/20) = 23240 ∗ 9.95
= $231238
Diff: 2 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

15) Three mechanics worked $15\frac{1}{2}$, $14\frac{3}{4}$, $18\frac{1}{8}$ hours respectively. What was the total cost of labour if the mechanics were paid $14.75 per hour?
Answer: Total Hours
$= 15\frac{1}{2} + 14\frac{3}{4} + 18\frac{1}{8}$

= 15.5 + 14.75 + 18.125
= 48.375
Total cost of labor = 48.375 ∗ 14.75 = $713.53
Diff: 2 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

16) Ana, Aamir and Charlotte worked $11\frac{3}{4}$, $14\frac{13}{20}$, and $22\frac{4}{5}$ hours respectively. What was the total cost of labour if they were paid $18.00 per hour?
Answer: Total Hours
$= 11\frac{3}{4} + 14\frac{13}{20} + 22\frac{4}{5}$

= 11.75 + 14.65 + 22.80
= 49.20
Total cost of labor = 49.20 ∗ 18.00 = $885.60
Diff: 2 Type: SA Page Ref: 7-13
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

17) A retailer returned 300 defective items to the manufacturer and received a credit for the retail price of $0.75 less a discount of 1/3 of the retail price. What was the amount of the credit received by the retailer?
Answer: Retail value = 300($0.75) = $225
Credit = (1-1/3 )∗ $225 = (2/3) ∗ $225 = $150
Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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18) Complete the following inventory sheet and find the total value.

| Item | Quantity | Cost per Unit | Total |
|---|---|---|---|
| 1 | 69 | $.85 | |
| 2 | 111 | 16 2/3 cents | |
| 3 | 155 | $2.75 | |
| 4 | 350 | $1.66 | |

Answer:

| | | |
|---|---|---|
| 1161616161669 × 0.85 | = | $58.65 |
| 111 × 0.16 2/3 = 330 × 0.1666667 | = | 18.50 |
| 155 × 2.75 | = | 426.25 |
| 350 × 1.66 | = | 581.00 |
| | | $1084.40 |

Diff: 1 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

19) Extend each of the following and determine the total.

| *Quantity* | *Unit Price* |
|---|---|
| 48 | $2.45 |
| 48 | $0.83$\frac{1}{8}$ |
| 16 | $2.12 |
| 60 | $1.33$\frac{1}{6}$ |

Answer:

| *Quantity* | *Unit Price* | *Value* |
|---|---|---|
| 48 | $2.45 | $117.60 |
| 48 | 0.83 1/8 | 39.90 |
| 16 | 2.12 | 33.92 |
| 60 | 1.33 1/6 | 79.90 |
| Total: | | $271.32 |

Diff: 1 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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20) Purchases of packs of printing paper during the last accounting period were as follows:

| *Number of items* | *Unit price* |
|---|---|
| 8 | $13.00 |
| 4 | $12.00 |
| 15 | $10.00 |
| 10 | $10.50 |

What was the weighted average price per item?
Answer:

| | *Number of items* | | *Unit price* | | *Weighted value* |
|---|---|---|---|---|---|
| | 8 | × | $13.00 | = | 104.00 |
| | 4 | × | $12.00 | = | 48.00 |
| | 15 | × | $10.00 | = | 150.00 |
| | 10 | × | $10.50 | = | 105.00 |
| Total: | 37 | | | | 407.00 |

Average price was 407/37 = $11.00
Diff: 2 Type: SA Page Ref: 17-24
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

21) Purchases of an inventory item during last month were as follows:

| *Number of items* | *Unit price* |
|---|---|
| 5 | $5.00 |
| 10 | $8.00 |
| 8 | $6.00 |
| 15 | $3.00 |

What was the weighted average price per item?
Answer:

| | *Number of items* | | *Unit price* | | *Weighted value* |
|---|---|---|---|---|---|
| | 5 | × | $5.00 | = | 25.00 |
| | 10 | × | 8.00 | = | 80.00 |
| | 8 | × | 6.00 | = | 48.00 |
| | 15 | × | 3.00 | = | 45.00 |
| Total: | 38 | | | | 198.00 |

Average price was 198/38 = $5.21
Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
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22) Noriko's final mark for her Financial Mathematics course was based on four tests with different weightings. Test one counted for 10% of the final grade, test two for 20%, test three for 30% and test four for 40%. If Clara received 70% on test one, 85% on test two, 64% on test three and 72% on test four, calculate her final mark.

Answer: = 70(0.1) + 85(0.2) + 64(0.3) + 72(0.4)
= 7 + 17 + 19.2 + 28.8
= 72

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

23) On a trip, a motorist purchased gasoline as follows: 66 litres at 69.0 cents per litre; 69 litres at 70.5 cents per litres; 80 litres at 71.5 cents per litre; and 57 litres at 74.5 cents per litre.

a) What was the average number of litres per purchase?
b) What was the average cost per litre?
c) If the motorist averaged 9.75 km per litre, what was her average cost of gasoline per kilometre?

Answer:

a) 66 + 69 + 80 + 57 = 272
   Average number of litres = 272 ÷ 4 = 68
b) Average cost per litre:
   Total cost = 66 × 69.0 = 45.54
   69 × 70.5 = 48.645
   80 × 71.5 = 57.20
   57 × 74.5 = 42.465
   193.85 cents
   Average cost = 193.86 ÷ 272 = 71.27 cents
c) Average cost per km = 71.27 ÷ 9.75 = 7.3097436 cents

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

24) Dorian Frump invested $12 500 in a business on January 1. She withdrew $850 on April 3, reinvested $1920 on August 1, and withdrew $700 on September 1. What is Don's average monthly investment balance for the year?

Answer:

Weighted investment:

| | |
|---|---|
| January 1 — March 31: | 12500 × 3/12 = 3125.0000 |
| April 1 - July 31: | 11650 × 4/12 = 3883.3333 |
| August 1 - August 31: | 13570 × 1/12 = 1130.8333 |
| September 1 - December 31: | 12870 × 4/12 = 4290.0000 |
| Average investment balance = | $12429.17 |

Diff: 2 Type: SA Page Ref: 17-24
Topic: 1.4 Applications - Averages
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25) Tommy Hughes invested $10 000 in a business on January 1. He withdrew $1000 on March 1, reinvested $5000 on July 1, and withdrew $4000 on October 1. What is Tommy's average monthly investment balance for the year?
Answer:
Weighted investment:

| | |
|---|---|
| January 1 - February 28: | 10000 × 2/12 = 1666.6700 |
| March 1 - June 30: | 9000 × 4/12 = 3000.0000 |
| August 1 - August 31: | 14000 × 3/12 = 3500.0000 |
| September 1 - December 31: | 10000 × 3/12 = 2500.0000 |
| Average investment balance = | $10666.67 |

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

26) The following information is shown in your investment account for last year. The balance on January 1 was $7600.00. A withdrawal of $420.00 was made on March 1. A deposit of $1690.00 was made on May 1 and another deposit of $130.00 was made on October 1. What was the average monthly balance for the year in your account?
Answer:

| *Date* | *Balance* | *Months* | *Weighted value* | |
|---|---|---|---|---|
| January | 1 | 7600 | 2 | 15 200 |
| March | 1 | 7180 | 2 | 14 360 |
| May | 1 | 8870 | 5 | 44 350 |
| October | 1 | 8740 | 3 | 26 220 |
| | | Total: | 12 | 100 130 |

Average monthly balance = 100130/12 = $8344.17
Diff: 2 Type: SA Page Ref: 17-24
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

27) Kevin Ash earns a semi-monthly salary of $1023.40 and works a regular workweek of 40 hours.
a) What is Kevin's hourly rate of pay?
b) If Kevin's gross earnings in one pay period were $1390.47, for how many hours of overtime was he paid at time and one-half of his regular pay?
Answer:
a) Semimonthly pay = $1023.40
Yearly salary = $24 561.60
Weekly gross pay = 24561.60 ÷ 52 = $472.34
Hourly rate = 472.34 ÷ 40 = $11.81
b) Gross pay = 1390.47
Regular pay = - 1023.40
Overtime pay = 367.07
Number of overtime hours = (367.07 ÷ 1.5) ÷ 11.81 = 20.72 hrs.
Diff: 3 Type: SA Page Ref: 24-32
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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28) R.J. earns $11.70 an hour, with time-and-a-half for hours worked over 36 a week. His clock hours for a week are 10.5, 7.5, 11, 13, and 9.75. Determine his gross earnings for a week.
Answer: Total hours = 10.5 + 7.5 + 11 + 13 + 9.75 = 51.75
Regular weekly earnings = 36 × $11.70 = $421.20
Overtime earnings = (51.75 - 36) × $11.70 × 1.5 = $276.41
Gross = Regular time + Overtime = $421.20 + $276.41 = $697.61
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

29) Florence Lamb is paid a commission of 10 3/4% on her net sales and is authorized to draw up to $900.00 a month. What is the amount due to Florence at the end of a month in which she drew $820.00, had sales of $14 660.00, and sales returns of $331.20?
Answer:

| | | |
|---|---|---|
| Gross sales | = $14660.00 | |
| Less: returns | = 331.20 | |
| Net sales | = 14328.80 | |
| Gross commission = 14328.80 × .1075 = | | 1540.35 |
| Less: drawings | | 820.00 |
| Amount due | | $720.35 |

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

30) A sales representative selling computer parts receives a commission of 3.5% on net sales up to $15 000.00, 7% on the next $6000.00, and 9% on any further sales. If his sales for a month were $34 250.00 and sales returns were $1055.00, what was his commission for the month?
Answer:

| | | | |
|---|---|---|---|
| Gross sales | = $34250.00 | | |
| Less: returns | = 1055.00 | | |
| Net sales | = $33195.00 | | |
| Commission: | = .035 × 15000.00 | = | $525.00 |
| | = .07 × 6000.00 | = | 420.00 |
| | = .09 × 12195.00 | = | 1097.55 |
| Total commission | | = | $2042.55 |

Diff: 2 Type: SA Page Ref: 23-29
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31) A salesperson had gross earnings of $943.25 for last week on gross sales of $8320.00. If returns and allowances were 5.5% of gross sales, what is his rate of commission based on net sales?
Answer: Net sales = (1 - .055) * 8320 = 7862.40
Commission rate = $\frac{943.25}{7862.40}$ = 11.997%

Diff: 3 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

32) A salesperson is paid a weekly salary of $350.00 or a commission of 14.5% of his sales, whichever is the greater. What is his earnings for a week in which his sales were
a) $2480.00?
b) $3780.00?
Answer:

| | | |
|---|---|---|
| a) | Salary | = $350.00 |
| | Commission = .145 ∗ 2480.00 | = $359.60 |
| | Gross earnings | = $709.60 |
| b) | Salary | = $350.00 |
| | Commission = .145 ∗ 3780.00 | = $548.10 |
| | Gross earnings | = $898.10 |

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

33) Beth's annual salary is $42 120.00. Her regular work-week is 36 hours and she is paid semi-monthly.
a) Calculate her gross pay period
b) Calculate her hourly rate of pay
c) Calculate her gross pay for a period in which she works 12 hours of overtime at time and one-half regular pay.
Answer:
a) $\frac{42120}{2 \times 12}$ = $1755.00
b) $\frac{42120}{52 \times 36}$ = $22.50
c) Overtime = 12 × 22.50 × 1.5 = $405.00
Gross pay = 1755.00 + 405.00 = $2160.00

Diff: 2 Type: SA Page Ref: 23-29
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34) Scott Rae had gross earnings of $554.30 for last week. Scott earns a base salary of $350.00 on a weekly quota of $4 500.00. If his sales for the week were $6124.00, what is his commission rate?
Answer:

| | | |
|---|---|---|
| Gross earnings | = | $554.30 |
| Less: base salary | = | 350.00 |
| Commission: | = | $204.30 |
| Sales for week | = | $6124.00 |
| Quota | = | 4500.00 |
| Commission sales | = | $1624.00 |

Rate of commission = $\frac{204.30}{1624.00}$ = 12.58%

Diff: 3 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

35) A.J. is paid an annual salary of $41 840.00. She is paid monthly on a 40-hour work week. What is the gross pay for a pay period in which she works 9 hours overtime at time-and-a-half regular pay?
Answer:

Weekly pay = $\frac{41840.00}{52}$ = 804.6154

Hourly pay = $\frac{804.62}{40}$ = $20.1154

Regular monthly earnings = $\frac{41840}{12}$ = 3486.67

Overtime earnings = 20.1154 × 9 ∗ 1.5 = 271.56
Gross = Regular time + Overtime = 3486.66 + 271.56 = $3758.22
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

36) Corrine Davis had gross earnings of $937.50 for the week. If she receives a base salary of $664.00 on a quota of $7800.00 and a commission of 6.75% on sales exceeding the quota, what were Corrine's sales for the week?
Answer:

| | | |
|---|---|---|
| Gross earnings | = | 937.50 |
| Less: base salary | = | 664.00 |
| Commission: | | 273.50 |

Commission sales = $\frac{273.50}{.0675}$ = 4051.85

Sales for week = $(7800 + 4051.85) = $11 851.85
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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37) Abigail receives a commission of 4.5% on the first $1250.00 of sales during a week. On the next $4500.00 she receives a commission of 11.5%. On any additional sales, the commission rate is 13.75%. Find her gross earnings for a week during which her sales amount to $14 200.00.
Answer: Commission on first $1250.00 is 0.045 × 1250.00 = 56.25
Commission on next $4500.00 is 0.115 × 4500.00 = 517.50
Commission on remainder = 0.1375 × 8450 = 1161.875
After rounding to the nearest cent, gross earnings are $1293.63.
Diff: 2 Type: SA Page Ref: 24-32
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

38) Last week Dana worked 46 hours. For the regular workweek of 40 hours she is paid $12.40 per hour, and for every hour over 40 hours she is paid at time and one-half regular pay. How much did she earn last week?
Answer: For the first 40 hours = 40(12.40) = 496.00
For the next 6 hours = 6(12.40 + 6.20) = 111.60
The total = 496.00 + 111.60 = $607.60
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

39) Kim Farrena earns $17.60 per hour. Overtime from Monday to Friday is paid at time and one-half regular pay for any hours over 7 1/2 per day. Overtime on weekends is paid at double the regular rate of pay. Last week Kim worked regular hours on Monday, Wednesday, and Friday, 8.5 hours on Tuesday, 11.75 hours on Thursday, and 5 hours on Saturday. Determine Kim's gross wages by each of the two methods.
Answer:

| | | | |
|---|---|---|---|
| **Method A** | Regular hours = 37.5 × 17.60 | = | 660.00 |
| | Overtime pay = 5.25 × 17.60 × 1.50 | = | 138.60 |
| | 5 × 17.60 × 2 | = | 176.00 |
| | Gross earnings | = | $974.60 |
| **Method B** | At regular rate: 47.75 × 17.60 | = | 840.40 |
| | Overtime premium: 5.25 × 17.60 × 0.50 | = | 46.20 |
| | Overtime premium 5 × 17.60 × 1 | = | 88.00 |
| | Gross earnings | = | $974.60 |

Diff: 3 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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40) C.O. is paid a semi-monthly salary of $1 250.00. If his regular work week is 35 hours, what is his hourly rate of pay?
Answer: Annual salary = 1250.00 × 24 = 30000.00

Weekly pay = $\frac{30000}{52}$ = 576.92

Hourly rate = $\frac{576.92}{35}$ = $16.48

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

41) C.O. is paid a semi-monthly salary of 2 754.30. If his regular work week is 42 hours, what is his hourly rate of pay?
Answer: Annual salary = 2754.30 × 24 = 66103.20

Weekly pay = $\frac{66103.20}{52}$ = 1271.22

Hourly rate = $\frac{1271.22}{42}$ = $30.27

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

42) An employee receives a gross pay of $750.73 for 47.25 hours of work. What is the hourly rate of pay if a regular work week is 37.5 hours and overtime is paid at time-and-a-half the regular rate of pay?
Answer: Let the regular rate of pay be $y$.
Regular weekly pay = $37.5y$
Overtime pay = $(9.75 \times 1.5)y = 14.625y$
Total pay = $37.5y + 14.625y = 750.7$
$52.125y = 750.73$
$y = 14.40$
The regular rate of pay is $14.40
Diff: 3 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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43) Ali checked his pay stub on his employee portal and it showed gross earnings of $596.00 for 51 hours of work. What is his hourly rate of pay if the regular workweek is 40 hours and overtime is paid at time and one-half the regular rate of pay?
Answer:
Total hours = 51
Regular hours = 40
Overtime hours = 11
At time-and-a-half, overtime hours are equivalent to
11 × 1.5 = 16.5 regular hours
Rate of pay = 596/56.5 = $10.55
Diff: 3 Type: SA Page Ref: 24-32
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

44) Barb's Home Income Tax business operates only during tax season. Last season Barb grossed $38 790 including GST. During that season she spent $9500 before GST on her paper and supply purchases. How much does Barb owe Revenue Canada for GST?
Answer: Barb's revenue of $38 790 includes 5% GST.
GST taxable revenue = $\frac{38790}{1.05}$ = 36 942.86
GST collected = 5% of 36 942.86 = 1 847.14
GST paid = 5% of 9 500 = 475.00
Barb owes Revenue Canada $1847.14 - $475 = $1372.14
Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

45) "Save the tax" is a popular advertising tactic. How much would you save on the purchase of a sweater with a list price of $52.00 in a Manitoba store during a "Save the PST" promotion?
Answer: Savings on PST = 7% of $52.00 = 0.07(52.00) = $3.64
Diff: 1 Type: SA Page Ref: 32-36
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.


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46) A retail chain sells snowboards for $855.00 plus GST and PST. What is the price difference for consumers in London, Ontario, and Lethbridge, Alberta?

Answer:

| | | |
|---|---|---|
| Total cost in London | | |
| Retail price | = | $855.00 |
| HST = 13% of $855.00 = 0.13(855) | | $111.15 |
| Total cost in London | = | $966.15 |

| | | |
|---|---|---|
| Total cost in Lethbridge | | |
| Retail price | = | $855.00 |
| GST = 5% of $855.00 = 0.05(855) | | $42.75 |
| PST | | nil |
| Total cost in Lethbridge | | $897.75 |
| Difference = PST | | $68.40 |

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

47) Emily's residence is assessed by the local taxation department at $249 500.00. Calculate the property taxes paid on this property if the existing mill rate is 15.

Answer: $249500 \times \frac{15}{1000} = \$3742.50$

Diff: 1 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

48) Calculate the property tax on a property located in the City of Brampton and assessed at $326 500 if the current tax rate is 1.05351%.

Answer: Property tax = $326 500 × 1.05351/100 = $3439.71

Diff: 1 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

49) Sean's residence is assessed by the local taxation department at $160 000. Calculate the property taxes paid on this property if the existing mill rate is 20.

Answer: $160\,000 \times \frac{20}{1000} = \$3200.00$

Diff: 1 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

50) The town of Pandora assesses property at market value. How much will the owner of a house valued at $325 000 owe in taxes if this year's mill rate has been set at 21.386?

Answer: Property tax $= 32500\left[\frac{21.368}{1000}\right] = \$6950.45$

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.


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51) A town has an assessed residential property value of $350 000 000. The town council must meet the following expenditures:

| | |
|---|---|
| Education: | $11 050 000 |
| General Purposes: | $2 100 000 |
| Recreation: | $270 000 |
| Public works: | $670 000 |
| Police and fire protection: | $857 500 |

a) Suppose 70% of the expenditures are charged against residential real estate. Calculate the total property taxes that must be raised.
b) What is the mill rate?
c) What is the property tax on a property assessed at $235 000?
Answer:
a) Total expenditure = $(11050000 + 2100000 + 270000 + 670000 + 958500)
= 14947500
Total residential property tax = 0.70(14947500) = $10463250
b) Residential mill rate = $\frac{10463250}{350000000}(1000) = 29.895$
c) Property tax = $\$235000\left[\frac{29895}{1000}\right] = \$7025.33$

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

52) Extend and total the following invoice.

| Quantity | Description | Unit Price | Amount |
|---|---|---|---|
| 77 | Item A | $0.65 | _____ |
| 208 | Item B | $83 | _____ |
| 621 | Item C | $1.19 | _____ |
| 414 | Item D | $1.95 | _____ |
| | | **Total** | _____ |

Answer:

| | | |
|---|---|---|
| 77 × 0.65 | = | $50.05 |
| $208 \times 0.83\frac{1}{4}$ | = | 173.16 |
| 621 × 1.19 | = | 738.99 |
| 414 × 1.95 | = | 807.30 |
| | | $1769.50 |

Diff: 1 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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53) Denise Jantz invested $35 000 on January 1 in a partnership. She withdrew $5000 on June 1, withdrew a further $1900 on August 1, and reinvested $6 000 on November 1. What was her average monthly investment balance for the year?

Answer:

| | | |
|---|---|---|
| January 1 - May 31: | $35000 \times 5 =$ | 175000 |
| June 1 - July 31: | $30000 \times 2 =$ | 60000 |
| August 1 - October 31: | $28100 \times 3 =$ | 84300 |
| November 1 - December 31: | $34100 \times \frac{2}{12} =$ | 68200 |
| Total | | 387500 |

Average monthly investment $= \frac{387500}{12} = \$32\ 291.67$

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

54) Jessica Hughes invested $40 000 on January 1 in a partnership. She withdrew $15 000 on June 1, withdrew a further $2000 on August 1, and reinvested $8 000 on November 1. What was her average monthly investment balance for the year?

Answer:

| | | |
|---|---|---|
| January 1 - May 31: | $40000 \times 5 =$ | 200000 |
| June 1 - July 31: | $25000 \times 2 =$ | 50000 |
| August 1 - October 31: | $23000 \times 3 =$ | 69000 |
| November 1 - December 31: | $31000 \times \frac{2}{12} =$ | 62000 |
| Total | | 381000 |

Average monthly investment $= \frac{381000}{12} = \$31\ 750.00$

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

55) Carla is paid a semi-monthly salary of $1870.80. Her regular workweek is 40 hours. Overtime is paid at time and one-half regular pay.

a) What is Carla's hourly rate of pay?
b) What is Carla's gross pay if she worked 7 1/2 hours overtime in one pay period?

Answer:

a) Annual salary $= 24 \times 1870.80 = 44899.20$
Weekly salary $= 44899.20 \div 52 = 863.45$
Hourly rate of pay $= \frac{863.45}{40} = \$21.58625$

b)

| | | |
|---|---|---|
| Regular semimonthly pay | = | 1870.80 |
| Overtime pay $= 7.5 \times 21.58625 \times 1.5$ | = | 242.85 |
| Gross earnings | | $2113.65 |

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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56) Tom is employed at an annual salary of $50 292.48. His regular workweek is 37.5 hours and he is paid semi-monthly.

a) What is Tom's gross pay per period?

b) What is his hourly rate of pay?

c) What is his gross pay for a period in which he worked 12 1/2 hours overtime at time and one-half regular pay?

Answer:

a) Semimonthly pay = 50292.48 ÷ 24 = 2095.52

b) Weekly pay = 50292.48 ÷ 52 = 967.16308

Hourly rate = 967.16308 ÷ 37.5 = 25.791015

| | | |
|---|---|---|
| c) Regular earnings | = | 2095.52 |
| Overtime pay = 12.5 × 25.791015 × 1.5 | = | 483.58 |
| Gross earnings | = | $2579.10 |

Diff: 2 Type: SA Page Ref: 23-29

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

57) Last week April worked 44 hours. She is paid $11.20 per hour for a regular workweek of 40 hours and overtime at time and one-half regular pay.

a) What were April's gross wages for last week?

b) What is the amount of the overtime premium?

Answer:

| | | |
|---|---|---|
| a) Regular earnings = 40 × 11.20 | = | 448.00 |
| Overtime pay = 4 × 11.20 × 1.5 | = | 67.20 |
| Gross earnings | = | $515.20 |

b) Overtime premium = 4 × 11.20 × 0.5 = $22.40

Diff: 2 Type: SA Page Ref: 23-29

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

58) Nick's gross earnings for one week was $698.10. His regular rate of pay is $15.60 for a 35 hour week and overtime is paid at time and one-half regular pay. Calculate the number of hours that Nick worked.

Answer: Gross earnings = 698.10

Regular earnings = 35 × 15.60 = 546.00

Overtime pay = 698.10 - 546.00 = 152.10

Overtime hours = $\frac{152.10}{15.60 \times 15}$ = 6.5 hours

Total number of hours worked = 35 + 6.5 = 41.5 hours

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Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.



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59) Mohammad is paid a weekly commission of 2% on net sales of $6000.00, 4% on the next $3 000.00 and 6.25% on all further sales. His gross sales for a week were 11 160.00 and sales returns and allowances were $120.00.

a) Calculate his gross earnings for the week.

b) Calculate the average hourly rate of pay for the week if he worked 40 hours.

Answer:

a) Net sales = Gross sales - Returns = 11 160 - 120 = 11 040

Commission: 2% of 6000 = 120.00

4% of 3000 = 120.00

6.25% of (11 040 - 9000) = 127.50

Gross earnings = 120.00 + 120.00 + 127.50 = $367.50

b) Average hourly rate = 367.50 ÷ 40 = $9.19

Diff: 2 Type: SA Page Ref: 23-29

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

60) September is paid on a weekly commission basis. She is paid a base salary of $370.00 on a weekly quota of $9500.00 and a commission of 5.75% on any sales in excess of the quota.

a) If September's sales for last week were $11 340.00, what were her gross earnings?

b) What are September's average hourly earnings if she worked 35 hours?

Answer:

| | | |
|---|---|---|
| a) Base salary on quota of $9500 | = | 370.00 |
| Commission = 5.75% on 1840 | = | 105.80 |
| Gross earnings | = | $475.80 |

b) Hourly rate = 475.80 ÷ 35 = $13.59

Diff: 3 Type: SA Page Ref: 23-29

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

61) Bill earned a gross commission of $2551.05 during August. What were his gross sales if his rate of commission is 14.5% of net sales and sales returns and allowances for the month were 6% of his sales?

Answer:

Net sales = 2551.05 ÷ 0.145 = 17593.448

Net sales = Gross sales - returns

17593.448 = Gross sales - 6% of Gross sales

17593.448 = 94% of Gross sales

Gross sales = $\frac{17593.48}{.94}$ = $18 716.43

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Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.



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62) Yanping receives a monthly salary of $1931.54 paid semi-monthly. The regular workweek is 38 hours.
a) Calculate the hourly rate of pay.
b) If the gross earnings for one pay period is 1270.75, for how many hours of overtime was Yanping paid at double-time regular pay.
Answer:
a) Annual gross earnings = 1931.54 × 12 = 23 178.48

Weekly gross earnings = $\frac{23178.48}{52}$ = 445.74

Hourly rate of pay = $\frac{445.74}{38}$ = $11.73

b) Regular semi-monthly gross earnings = $\frac{1931.54}{2}$ = 965.77

Overtime pay = 1270.75 - 965.77 = 304.98
Overtime rate = 11.73 × 2 = 23.46
Overtime hours = $\frac{304.98}{23.46}$ = 13 hours

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

63) Norm Bates is paid a semi-monthly salary of $792.50. Regular hours are 37 1/2 per week and overtime is paid at time and one-half regular pay.
a) What is Norm's hourly rate of pay?
b) How many hours overtime did Norm work in a pay period for which his gross pay was $946.30?
Answer:
a) Annual salary = 792.50 × 24 = 19020.00
Weekly pay = 19020.00 ÷ 52 = 365.76923
Hourly rate of pay = 365.76923 ÷ 37.5 = $9.75
b) Gross earnings = 946.30
Regular earnings = 792.50
Overtime pay = 153.80
Overtime hourly rate = 9.75 × 1.5 = 14.625
Overtime hours = 153.80 ÷ 14.625 = 10.516 hr.
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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64) Mark's gross wages for a week were $711.20. His regular workweek is 40 hours and overtime is paid at time and one-half regular pay. What is Mark's regular hourly wage if he worked 45 1/2 hours?
Answer:

| | | |
|---|---|---|
| Total hours | = | 45.5 |
| Regular hours | = | 40.00 |
| Overtime hours | = | 5.5 |

5.5 overtime hours are equivalent to 5.5 × 1.5 = 8.25 regular hours.

Hourly rate of pay = $\frac{711.20}{48.25}$ = $14.74

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

65) Shaggy's Grocery Store shows sales revenue (exclusive of GST) of $235 000 for the year. Shaggy's GST taxable expenses were (exclusive of GST) $24 750. How much should he remit to the government at the end of the year?
Answer:

| | | | |
|---|---|---|---|
| GST collected | = 5% of $235000 = 0.05(235000) | = | 11750.00 |
| GST paid | = 5% of $24750 = 0.05(24750) | = | - 1237.50 |
| GST remittance | | = | $10512.50 |

Diff: 2 Type: SA Page Ref: 32-35
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

66) A store located in Penticton, B.C., sells a computer for $2975.00 plus HST. If the same model is sold at the same price in a store in Thunder Bay, Ontario, what is the difference in the prices paid by consumers in the two stores?
Answer:
Amount paid in Penticton, BC
= Retail Price + 12% HST
= 2975(1.12)
= $3332.00
Amount paid in Thunder Bay, ON
= Retail price + 13%HST
= 2975(1.13)
= $3361.75
The difference = 3361.75 - 3332 = $29.75, that is the 1% difference in the HST.
Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.


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67) A computer store located in Oakville, Ont., sells a laptop for $1000.00 plus HST. If the same model is sold at the same price in a store in Victoria, B.C.., what is the difference in the prices paid by consumers in the two stores?

Answer: Amount paid in Oakville, Ont
= Retail Price + 13% HST
= 1000(1.13)
= $1130
Amount paid in Victoria, B.C.
= Retail price + 12% HST
= 1000 (1.12)
= $1120
The difference = 1130- 1120 = $10.00, that is the 1% difference in the HST

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

68) Two people living in different communities build houses of the same design on lots of equal size. If the person in Airdrie has his house and lot assessed at $165 000 with a mill rate of 22.051 mills, will his taxes be more or less than the person in Kimberly with an assessment of $145 000 and a mill rate of 25.124 mills?

Answer: Property tax in Airdrie = $165000\left[\frac{22.051}{1000}\right] = 3638.42$

Property tax in Kimberly = $145000\left[\frac{25.124}{1000}\right] = 3642.98$

The person in Kimberly pays $4.56 more in property tax.

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

69) Extend each of the following and determine the total.

| Quantity | Unit Price |
|---|---|
| 74 | $1.35 |
| 90 | $16\frac{1}{3}$ |
| 70 | $0.885 |
| 58 | $1.35 |

Answer:

$74 \times 1.35 = 99.90$

$90 \times 0.16\frac{1}{3} = 14.70$

$70 \times .885 = 61.95$

$58 \times 1.35 = 78.30$

Total $254.85

Diff: 1 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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70) Spade Realty sold lots for $17 120 per hectare. What is the total sales value if the lot sizes, in hectares, were 5 3/4, 7 1/3, 5 5/8, and 4 1/6?
Answer:

Total size $= \left[5\frac{3}{4} + 7\frac{1}{3} + 5\frac{5}{8} + 4\frac{1}{6}\right]$ ha

= (5.75 + 7.3333333 + 5.625 + 4.1666667) ha

= 22.875 ha

Sales value = 17120 × 22.875 = $391620.00

Diff: 1 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

71) Heart of Gold Realty sold lots for $50 000 per hectare. What is the total sales value if the lot sizes, in hectares, were 1 3/4, 2 1/3, 3 5/8, and 4 1/6?
Answer:

Total size $= \left[1\frac{3}{4} + 2\frac{1}{3} + 3\frac{5}{8} + 4\frac{1}{6}\right]$ ha

= (1.75 + 2.3333333 + 3.625 + 4.1666667) ha

= 11.875 ha

Sales value = 50000 × 11.875 = $593 750.00

Diff: 1 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

72) A salesperson earned a commission of $926.59 for last week on gross sales of $7880. If returns and allowances were 10.5% of gross sales, what is his rate of commission based on net sales?
Answer:

Net sales = 0.895 × 7880.00 = 7052.60

Commission rate $= \frac{926.59}{7052.60} = 13.14\%$

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

73) Levi earns $19.60 an hour with time and one-half for hours worked over 8 a day. His hours for a week are 9.25, 8.5, 10.5, 13.5, and 6.25. Determine his gross earnings for a week.
Answer:

Total hours = 9.25 + 8.5 + 10.5 + 13.5 + 6.25 = 48
Regular hours = 8 + 8 + 8 + 8 + 6.25 = 38.25
Overtime hours = 1.25 + 0.5 + 2.5 + 5.5 = 9.75

| | | |
|---|---|---|
| Regular pay = 38.25 × 19.60 | = | 749.70 |
| Overtime pay = 9.75 × 19.60 × 1.5 | = | 286.65 |
| Gross pay | = | $1036.35 |

Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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74) A salesperson receives a weekly base salary of $800.00 on a quota of $2900. On the next $2100, she receives a commission of 14%. On any additional sales, the commission rate is 19%. Find her gross earnings for a week in which her sales total $8455.

Answer:

| | | |
|---|---|---|
| Base salary on first $2900 | = | $800.00 |
| Commission on next $2100 = 0.14 × 2100 | = | 294.00 |
| Commission on additional sales = (8455 - 5000) × 0.19 = 3455 × .19 = | | 656.45 |
| Gross earnings | = | $1750.45 |

Diff: 2 Type: SA Page Ref: 16-21

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

75) A clothing salesperson receives a weekly base salary of $200.00 on a quota of $3 000. On the next $1000, he receives a commission of 25%. On any additional sales, the commission rate is 40%. Find her gross earnings for a week in which her sales total $6000.

Answer:

| | | |
|---|---|---|
| Base salary on first $3000 | = | $200.00 |
| Commission on next $1000 = 0.25 × 1000 | = | 250.00 |
| Commission on additional sales = (6000 -4000) × 0.40 = 2000 ×. 40 = | | 800.00 |
| Gross earnings | = | $1250.00 |

Diff: 2 Type: SA Page Ref: 23-29

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

76) Esther's flower shop had sales revenue of $152 000.00 for the year. If the shop's GST taxable expenses were 29 920.00. Calculate how much Colleen should remit to the government at the end of the year.

Answer:

GST collected = (0.05)152 000 = $7 600

GST paid = (0.05)29 920 = $1 496

GST remittance = 7600 - 1496 = $6104

Diff: 2 Type: SA Page Ref: 30-33

Topic: 1.6 Applications - Taxes

Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

77) Alicia Helm of Wawanesa, Manitoba, bought a ring for $5700. Since the jeweller is shipping the ring, Alicia must pay a shipping charge of $30.00. She must also pay PST and GST on the ring. Find the total purchase price of Alicia's ring.

Answer:

| | | | |
|---|---|---|---|
| Total value | | | $5730.00 |
| GST | 5% of $5730.00 | $286.50 | |
| Manitoba PST | 7% of 5730.00 | 401.10 | 687.60 |
| Total purchase price | | | $6417.60 |

Diff: 1 Type: SA Page Ref: 30-33

Topic: 1.6 Applications - Taxes

Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.



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78) Suppose you went shopping and bought bulk laundry detergent worth $11.65. You then received a $1.50 trade discount, and had to pay a $2.10 shipping charge. Find the total purchase price of the detergent in Nova Scotia.

Answer:

| | | |
|---|---|---|
| Purchase price | | $11.65 |
| Less discount | | 1.50 |
| Net price | | 10.15 |
| Add shipping charge | | 2.10 |
| Total cost before taxes | | 12.25 |
| HST 15% of $12.25 | 1.8375 | 1.84 |
| Total cost in Nova Scotia | | $14.09 |

Diff: 1 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

79) A town has a total residential assessment of 900 million dollars. The town must meet expenditures of $45 million.

a) If 90% of the expenditures are charged against residential real estate, calculate then total property taxes that must be raised.

b) Calculate the mill rate.

c) Calculate the property tax on a property assessed at $235 000.00

Answer:

a) Total Residential property tax = 0.9(45 000 000) = $40 500 000

b) Mill rate = $\frac{40500000}{900000000}(1000) = 45$

c) Property tax = $235000\frac{45}{1000}$ = $10 575.00

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

80) A small town has a total residential assessment of $1.1 billion. The town must meet expenditures of $300 million.

a) If 80% of the expenditures are charged against residential real estate, calculate then total property taxes that must be raised.

b) Calculate the mill rate.

c) Calculate the property tax on a property assessed at $500 000.00

Answer:

a) Total Residential property tax = 0.8(300 000 000) = $240 000 000

b) Mill rate = $\frac{240000000}{1100000000}(1000) = 218.18$

c) Property tax = $500000\left[\frac{218.18}{1000}\right]$ = $109 090

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.


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81) Simplify: $6 + \frac{28 - 6 \times 4}{2} - 4$

A) 46
B) 18
C) 24
D) 4
E) 8
Answer: D
Diff: 1 Type: MC Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

82) Simplify: $10 + \frac{40 - 10 \times 4}{2} - 5$

A) 2
B) 5
C) 55
D) 7.5
E) 8
Answer: B
Diff: 1 Type: MC Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

83) Calculate the final answer for the following expression:
$(5^3 + 2^2) \div 20$
A) 5.45
B) 4.45
C) 6.45
D) 7.45
E) 9.45
Answer: C
Diff: 1 Type: MC Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

84) Simplify the following:
$7125 \times \left[4 - \frac{425}{775}\right]$
A) 23592.74
B) 24592.74
C) 25592.74
D) 26592.74
E) 27592.74
Answer: B
Diff: 1 Type: MC Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.


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85) Calculate the weighted-average cost of the following inventory purchases:

| Date | Quantity Purchased | Cost per Unit | Total Amount |
|---|---|---|---|
| May 4 | 33 | $12.25 | |
| May 11 | 41 | $13.87 | |
| May 29 | 37 | $11.99 | |

A) $12.76
B) $12.12
C) $22.11
D) $21.21
E) $22.22
Answer: A
Diff: 1 Type: MC Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

86) You are paid a commission on the gross profit per vehicle that you sell. The commission increases with each additional vehicle that you sell. The minimum commission is 25% and it increases in increments of 1% for each additional vehicle sold. Your sales for the following month were as follows:

| Vehicle | Gross Profit |
|---|---|
| 1 | $755 |
| 2 | $1023 |
| 3 | $474 |
| 4 | $1512 |
| 5 | $864 |
| 6 | $1021 |
| 7 | $1953 |
| 8 | $1207 |

What is your monthly gross pay?
A) $2462.69
B) $2569.42
C) $2669.69
D) $2642.69
E) $2554.60
Answer: E
Diff: 1 Type: MC Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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87) Your full-time job pays you a bi-weekly salary of $2963.56. In addition to this position you have been working part-time for the last 15 months and earn $500 semi-monthly. You have other payments that total $14 400 per year. What is the maximum monthly amount that your payments can be towards a house purchase? Assume that property taxes and heating costs are included in the $14 400.
A) $2844.42
B) $3488.42
C) $2488.42
D) $1961.42
E) none of the above
Answer: C
Diff: 1 Type: MC Page Ref: 25-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

88) You are supposed to teach $15\frac{2}{3}$ credit hours per week per term for a trimester school year. Anything above is considered to be overtime and is compensated at time and one-half you regular rate of $27.13 per hour. You work the following credit hours. How much total overtime, for the entire term, does your employer owe you at the end of the third term (assume that you were not paid any overtime in terms one and two and that the term is 15 weeks long)?

| Term | Credit Hours |
|---|---|
| 1 | 20 |
| 2 | 26 |
| 3 | 19 |

A) $9987.50
B) $10 987.50
C) $8987.5
D) $11 987.50
E) $11 187.50
Answer: B
Diff: 1 Type: MC Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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89) Your gross annual pay is $19 163. Employment insurance premiums are deducted at a rate of 2.25% and Canada Pension Plan premiums are 3.75% based on total earnings. You pay income taxes at a rate of 17% on all amounts over $8131. What is your Net Pay for the year?
A) $15 137.78
B) $17 137.78
C) $16 317.78
D) $16 137.78
E) $18 237.78
Answer: D
Diff: 2 Type: MC Page Ref: 16-21
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

90) Calculate the final answer for the following expression: $(10^3 + 20^2) \div 20$.
A) 50.00
B) 20.00
C) 70.00
D) 3.5
E) 5000
Answer: C
Diff: 1 Type: MC Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

91) Calculate the weighted-average cost of the following inventory purchases:

| Date | Quantity Purchased | Cost per Unit | Total Amount |
|---|---|---|---|
| June 4 | 30 | $11.50 | $345.00 |
| June 14 | 40 | $15.00 | $600.00 |
| June 29 | 30 | $10.99 | $329.70 |

A) $12.74
B) $12.75
C) $22.74
D) $22.75
E) $37.49
Answer: B
Diff: 1 Type: MC Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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92) You bought a new car in Ontario for $19 500 which included HST. What is the total amount of HST that you paid?
A) $2535.00
B) $2243.36
C) $2913.79
D) $1197.37
E) $171.05
Answer: B
Diff: 1 Type: MC Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

93) Phil works for a hydro company in a 35 hour work week schedule. His contract pays him $1345/week for working Monday to Friday, 7 hours a day. If he spends more time than his usual time, he is entitled to "time and a half" on time worked in excess of 7 hours per day. If he works on Sundays or statutory holidays, he is entitled to twice the time. Calculate his gross earnings for the month of October 2013, if he worked for 5 hours on Thanksgiving Day in addition to his regular hours for the month.
Answer: Rate per day = $\frac{1345}{3}$ = $269/day

Rate per hour = $\frac{1345}{35}$ = $38.43/hr

Total working days in October 2013 = 22 days
Pay for regular days = 269 × 22 = $5918
Pay for overtime = 5 × 2 × 38.43 = $384.29
Gross earnings for October 2013 = $5918 + $384.29 = $6302.29
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

94) Isabelle works for The Brick, a furniture company. She earns a base salary $12/hr, 40 hours a week. However, she is also paid commission of 2% for all sales and an extra lump sum of $1000 incentive if her monthly sales exceed $10 000. In the month August, she won the title of employee of the month for total sales of $75 000. How much did she earn in the month of August, assuming a 4 week month?
Answer: Base salary = 12 × 40 × 4 = $1920
Commission earned in August = 2% × 75000 = $1500
Total pay for August = $1920 + $1500 + $1000 = $4420
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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95) Isabelle works for The Brick, a furniture company. She earns a base salary $12/hr, 40 hours a week. However, she is also paid commission of 2% for all sales and $1000 incentive pay for every sale of $10 000. In the month August, she won the title of employee of the month for total sales of $75 000. How much did she earn in the month of August, assuming a 4 weeks month?
Answer: Base salary = 12 × 40 × 4 = $1920
Commission earned in August = 2% × 75000 = $1500
Total incentive pay = 7 × $1000 = $7000
Total pay for August = $1920 + $1500 + $7000 = $10 420
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

96) Phil works for a hydro company in a 35 hour work week schedule. His contract pays him $1345/week for working Monday to Friday, 7 hours a day. If he spends more time than his usual time, he is entitled to "time and a half" on time worked in excess of 7 hours per day. If he works on Sundays or statutory holidays, he is entitled to twice the time. Calculate his gross earnings for the month of November 2013, if he worked straight time only.
A) $5380
B) $4035
C) $5649
D) $8473.50
E) $11 298
Answer: C
Diff: 2 Type: MC Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

97) Raj works for Honda Pickering on commission based on each unit sold. He gets $700 for every used car he sells and $975 for every new car. He sold 8 used cars and 5 new cars in January 2020. What was his gross earning in January?
A) $5600
B) $4875
C) $10,475
D) $11,300
Answer: C
Diff: 2 Type: MC Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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98) Abu sells mutual funds for CIBC. On mutual funds sales, CIBC charges a "front-end load" or gross commission rate of 5%. Abu is paid on a graduated commission structure. He receives 30% commission on the first $50 000 worth of mutual funds he sells in a month, 40% commission for the next $50 000 worth of mutual funds, and 75% commission on all additional sales in the same month. What is Abu's commission for a month in which he sells $150 000 worth of mutual funds?
A) $3625
B) $2250
C) $2700
D) $4500
E) $5625
Answer: A
Diff: 2 Type: MC Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

99) On March 1, Sam invested $90 000 in a business. On June 1, he invested another $10 000. On July 1, he withdrew $17 000 to spend on the repair of his house. On September 1, he injected another $2000 into the business. What was his average investment per month in the business during the year? Assume all months have the same length or weighting.
Answer: $0 are invested for 2 months
$90,000 are invested for 3 months
$90000 + $10000 = $100,000 are invested for 1 month
$100,000 - $17000 = $83000 are invested for 2 months
$83000 + $2000 = $85000 are invested for 4 months

$$\text{Average investment} = \frac{0 \times 2 + 9000 \times 3 + 100000 \times 1 + 83000 \times 2 + 85000 \times 4}{12}$$

$$= \frac{876000}{12} = \$73\ 000 \text{ per month}$$

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

100) The engineering department of a consulting company has 8 junior engineers working at $24.75/hour, 5 senior engineers working at $39.49/hour, and an engineering manager working at $47.24 per hour. Calculate the weighted average hourly rate earned by the engineering department.
A) $31.62
B) $37.16
C) $88.19
D) $35.09
E) $34.05
Answer: A
Diff: 1 Type: MC Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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101) In 2011, Danny invested his savings among four mutual funds as follows: 25% in bonds fund, 20% in Canadian equity fund, 40% in US equity fund, and the rest in money markets. During the past year, the rates of return on the individual funds were 7%, 3%, 9%, and -1%, respectively. What was the overall return rate on his portfolio?

Answer: Contributing rate of return from bonds fund = 25% × 7% = 1.75%

Contributing rate of return from Canadian equity fund = 20% × 3% = 0.6%

Contributing rate of return from US equity fund= 40% × 9% = 3.6%

Contributing rate of return from money market = (100% - 25% - 20% - 40%) × (-1%)

= 15% × (-1%) = -0.15%

Overall return rate on portfolio = 1.75% + 0.6% + 3.6% - 0.5% = 5.8%

Diff: 1 Type: SA Page Ref: 16-21

Topic: 1.4 Applications - Averages

Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

102) In the first term, Sam's courses and grades were as follows:

| Course | Credit | Grade Point Value |
|---|---|---|
| English | 2 | 2.7 |
| French | 2 | 3.0 |
| Math | 3 | 4.0 |
| Physics | 3 | 4.0 |
| Chemistry | 3 | 3.7 |
| Social Science | 1 | 3.3 |
| Arts | 1 | 2.0 |

Calculate Sam's Grade Point Average (GPA).

Answer:

| Course | Credits | GPV | Credits × GPV |
|---|---|---|---|
| English | 2 | 2.7 | 5.4 |
| French | 2 | 3.0 | 6.0 |
| Math | 3 | 4.0 | 12.0 |
| Physics | 3 | 4.0 | 12.0 |
| Chemistry | 3 | 3.7 | 11.1 |
| Social Science | 1 | 3.3 | 3.3 |
| Arts | 1 | 2.0 | 2.0 |
| Total | 15 | | 51.8 |

Grade Point Average = $\frac{52}{15}$ = 3.45

Diff: 1 Type: SA Page Ref: 16-21

Topic: 1.4 Applications - Averages

Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.



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103) Kim invested $7500 in a business for 3 months. She withdrew $2500 at the start of the fourth month and kept the rest of the money in the savings account for the remaining 9 months in the year. What is Kim's average monthly investment balance for the year?
A) $833
B) $1042
C) $3750
D) $5625
E) $5000
Answer: D
Diff: 1 Type: MC Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

104) Certify Auto Repair (CAR) files GST returns annually. In 2012, CAR billed its customers $195 432 for labour, $24 732 for parts, and then added the GST. During this year, CAR paid $19 785 for parts, $36 000 for rent, $9767 for utilities, and $21 873 for shop repairs, plus the GST on these goods and services. What GST must be remitted (or refunded by the CRA ) for the year 2012?
Answer: Total Revenue = 195432 + 24732 = $220 164
Total Costs = 19785 + 36000 + 9767 + 21873 = $87 425
Net Revenue = 220164 - 87425 = $132 739
GST remitted = $6636.95
Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

105) Samir plans to sell his 2400 sq. ft. bungalow in Whitby for $389 000 and buy a similar-sized house in Oshawa for $369 000. Whitby charges the property tax at the mill rate of 13.59815, whereas Oshawa charges the property tax at the mill rate of 16.18347. What will be his net property tax penalty/saving?
Answer: Property Tax in Whitby = $\frac{13.59815}{1000} \times 389000 = \$5289.68$

Property Tax in Oshawa = $\frac{16.18347}{1000} \times 369000 = \$5971.70$

Net property tax penalty = $682.02
Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

106) Justin is planning to buy a house. He has two options. A 1800 sq. ft. bungalow in Courtice costs $389 000. A similar house costs $369 000 in Bowmanville. Justin plans to base his decision on the cost of property tax paid. Whitby charges the property tax at the mill rate of 13.59815, whereas Oshawa charges the property tax at the mill rate of 16.18347. Where will he end up paying less taxes?
A) Taxes are the same in both the cities
B) In Bowmanville
C) In Courtice
D) There is not enough data to make a decision
Answer: C
Diff: 1 Type: MC Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.


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107) Paul is a homeowner in Whitby and his home value has been recently assessed by MPAC as $339 500. Paul's tax notice lists the following mill rates for various local services and capital developments. Calculate current year's total property tax.

| | |
|---|---|
| Town general municipal | 4.19938 |
| Region subtotal | 7.18877 |
| Education | 2.21000 |

Answer: Total property tax rate = 4.19938 + 7.18877 + 2.21 = 13.59815

Total property tax = $\frac{13.59815}{1000} \times 339500 = \$4616.57$

Diff: 2 Type: SA Page Ref: 30-33
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

108) Simplify: $\frac{\sqrt{5^2 + 6^2 + 7^2}}{5 + 6 + 7}$

A) 1
B) 0.24
C) 6.11
D) 10.49
E) 0.58
Answer: E
Diff: 1 Type: MC Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

109) Simplify: $\frac{-3 + \sqrt{3^2 - 4 \times 1 \times 2}}{2 \times 1}$

A) -1.5
B) 1.5
C) 0
D) -1
E) 1
Answer: D
Diff: 1 Type: MC Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.


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110) Simplify: $\dfrac{\$636}{0.09 + \dfrac{301}{365}}$

A) \$7067
B) \$771
C) \$695
D) \$765
E) \$665
Answer: C
Diff: 1 Type: MC Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

111) Simplify: $5\frac{3}{4} + 7\frac{5}{8} - 9\frac{1}{2}$

A) $3\frac{1}{8}$

B) $3\frac{7}{8}$

C) $22\frac{7}{8}$

D) $3\frac{1}{16}$

E) $3\frac{7}{16}$

Answer: B
Diff: 1 Type: MC Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

112) Simplify and round the answer to two decimal places: 56.929 - 36.434
A) 20.49
B) 20.50
C) 20.54
D) 20.53
E) 20.48
Answer: B
Diff: 1 Type: MC Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

113) Change 0.25% into a decimal.
Answer: 0.25/100 = 0.0025
Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.


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114) Change 0.035 into a percent.
Answer: $0.035 * 100 = 3.5\%$
Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

115) Change 0.2% into a fraction.
A) $\frac{1}{500}$
B) $\frac{1}{5}$
C) $\frac{1}{50}$
D) $\frac{1}{2}$
E) $\frac{1}{12}$
Answer: A
Diff: 1 Type: MC Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

116) Express the following as a percentage:
$\frac{15}{84}$
A) 16.67%
B) 166.67%
C) 1.667%
D) .1667%
E) .001667%
Answer: A
Diff: 1 Type: MC Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

117) Change the following expression into a decimal: 166.67%
A) 166667
B) 166.7
C) 16667
D) 1.6667
E) 0.16667
Answer: D
Diff: 1 Type: MC Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.


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118) $87\frac{1}{2}$% is equal to:

A) $\frac{87.5}{100}$%

B) $87\frac{1}{200}$

C) 8.75

D) $\frac{7}{8}$

E) $\frac{5}{8}$

Answer: D
Diff: 1 Type: MC Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

119) Convert 99.5% into decimals.
A) 0.9
B) 0.99
C) 0.999
D) 0.995
E) 9.95
Answer: D
Diff: 1 Type: MC Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

120) Simplify: $2[4^2 - 3 \times 12 + 4(7 - 9 \times 50)] + (6 + 9^4)$

Answer: $= 2[4^2 - 3 \times 12 + 4(7 - 9 \times 50)] + (6 + 9^4)$

$= 2[16 - 3 \times 12 + 4(7- 9 \times 50)] + 6 + 9^4$

$= 2[16 - 36 + 4(-443)] + 6 + 9^4$

$= 2[16 - 36 - 1772] + 6 + 9^4$

$= 2[-1792] + 6 + 9^4$

$= -3584 + 6 + 9^4$

$=-3584 + 6 + 6561$

$= -3578 + 6561$

$= 2983$

Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.


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121) Simplify: 44[(9 ÷ 3) + 72 - 6 × 2.5 - 19] - [42 - 3(77 ÷ (3.5 × 2)) - 9]
Answer: = 44[3 + 72 - 15 - 19] - [42 - 3(77 ÷ 7) - 9]
= 44[60 - 19] - [42 - 3(11) - 9]
= 44(41) - [42 - 33 - 9]
= 44(41) - [9 - 9]
= 1804 - 0
= 1804
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

122) Simplify, then round to the nearest hundredth: $\dfrac{2540}{2 - 0.44 + \dfrac{671}{1342}}$

Answer: $= \dfrac{2540}{1.56 + \dfrac{671}{1342}}$

$= \dfrac{2540}{1.56 + \dfrac{1}{2}}$

$= \dfrac{2540}{1.56 + 0.5}$

$= \dfrac{2540}{2.06}$

= 1233.01
Diff: 1 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

123) Convert this fraction into the decimal form. If appropriate, place a dot above a decimal number to show that it repeats: $\dfrac{17}{12}$

Answer: 1.416
Diff: 1 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

124) Convert this fraction into the decimal form. If appropriate, place a dot above a decimal number to show that it repeats: $\dfrac{6}{20}$

Answer: 0.333
Diff: 1 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.


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125) Reduce the following fraction to the lowest term: $\frac{64}{104}$

Answer: $\frac{8}{13}$

Diff: 1 Type: SA Page Ref: 6-11
Topic: 1.2 Fractions
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

126) Change the following percent into a common fraction in lowest terms: 34%
Answer: $\frac{17}{50}$

Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

127) Change the following percent into a common fraction in lowest terms: 82.6%
Answer: $\frac{413}{500}$

Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

128) Express the following as a percent: 0.67
Answer: 67%
Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

129) Express the following as a percent: 4.55
Answer: 455%
Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

130) Express the following as a percent: $\frac{7}{8}$

Answer: 87.5%
Diff: 1 Type: SA Page Ref: 12-15
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.


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131) A house in Detroit was sold at \$246,000, which is $\frac{4}{13}$ of its actual value. If the realtor made a commission of \$1.25 on each \$250 of the actual house value, how much commission does the realtor earn while selling the house?

Answer: $\frac{1}{13}$of the house's actual cost is $\frac{4}{13}$ of the cost ÷ 4.

\$246 000 ÷ 4 = \$61 500.

$\frac{13}{13}$ of the cost or all the actual value of the house, is $\frac{1}{13}$ of the cost × 13.

\$61 500 × 13 = \$799 500

$\frac{13}{13}$ of the house's price is \$799 500.

\$799 500 ÷ \$250 = \$3198.

\$3198 × \$1.25 = \$3997.50

The realtor earned \$3997.50.

Diff: 3 Type: SA Page Ref: 16-21

Topic: 1.4 Applications - Averages

Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

132) A party room was rented out at \$11.75 per hour. If 6 people each rented the room for $2\frac{3}{5}$, $1\frac{17}{20}$, $4\frac{5}{6}$, $3\frac{3}{4}$, $6\frac{1}{3}$, and $2\frac{7}{10}$ hours respectively, how much did the party room owners earn in total (excluding all taxes)? Round your answer to the nearest cent.

Answer: $= \frac{11.75}{1} \times \frac{13}{5} + \frac{11.75}{1} \times \frac{37}{20} + \frac{11.75}{1} \times \frac{29}{6} + \frac{11.75}{1} \times \frac{15}{12} + \frac{11.75}{1} \times \frac{19}{3} + \frac{11.75}{1} \times \frac{27}{10}$

$= \frac{152.75}{5} \times \frac{434.75}{20} \times \frac{340.75}{6} \times \frac{176.25}{12} \times \frac{223.25}{3} \times \frac{317.25}{10}$

= 30.55 + 21.7375 + 56.7916 + 14.6875 + 74.4166 + 31.725

= 229.91

= The party room owners were paid \$229.91 in total.

Diff: 2 Type: SA Page Ref: 16-21

Topic: 1.4 Applications - Averages

Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.



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133) Complete the following statement:

| Quantity | Description | Unit Price | Total $ |
|---|---|---|---|
| 88 | Alpha | $0.37 | |
| 65 | Bravo | $96\frac{4}{5}$ ¢ | |
| 73 | Charlie | $0.675 | |
| 46 | Delta | $1.44 | |

Answer:

| Quantity | Description | Unit Price | Total $ |
|---|---|---|---|
| 88 | Alpha | $0.37 | 32.56 |
| 65 | Bravo | $96\frac{4}{5}$ ¢ | 62.92 |
| 73 | Charlie | $0.675 | 49.275 |
| 46 | Delta | $1.44 | 66.24 |

Diff: 2 Type: SA Page Ref: 16-21
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.

134) Oliver received a pay at the end of the month of $4 303.00 in June 2016, working 6 hours a day, and a total of 20 days in the month. Included in the pay is a bonus of $243. What is Oliver's hourly rate of pay? Round to the nearest cent.
Answer: $4 303.00 – $243 = $4 100.00
$4 060 ÷ 20 = $203
$203 ÷ 6 = $33.83
Oliver's hourly rate of pay is $33.83
Diff: 2 Type: SA Page Ref: 23-29
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.


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135) An employee at a nuclear power plant in New York has an annual salary of $143 000 and is paid every two weeks. The employee works twenty days in a month, five days in a week, and eight hours in a day. (Assume 52 weeks in a year)

a) What is the gross pay per pay period?

b) What is the employee's hourly rate of pay?

Answer:

a) 52 ÷ 2 = 26

He has 26 pay periods in a year.

$143 000 ÷ 26 = $5500

The employee's gross pay per pay period is $5500

b) $5500 ÷ 10 = $550

$550 ÷ 8 = $68.75

The employee earns $68.75 per hour.

Diff: 2 Type: SA Page Ref: 23-28

Topic: 1.5 Applications - Payroll

Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

136) Determine the amount of provincial sales tax in Quebec after purchasing an electric key board for $182.

Answer: 9.975% of 182 = 0.09975(182) = $18.15

Diff: 1 Type: SA Page Ref: 32-35

Topic: 1.6 Applications - Taxes

Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

137) While in Prince Edward Island, Charlotte goes to the barbershop, where she pays $24 for the haircut and $21 for the colour, both of which are subject to the 14% HST. She also tips the barber 17% of the combined cost of the haircut and colouring, excluding taxes. How much does Charlotte spend in total?

Answer: 24 + 21 = 45 Tip = 17% of 45 = 0.17(45) = $7.65 HST on the haircut = 14% of 24 = 0.14(24) = $3.36 HST on the colouring = 14% of 21 = 0.14(21) = $2.94 Total = 45 + 7.65 + 3.36 + 2.94 = $58.95

Diff: 2 Type: SA Page Ref: 30-33

Topic: 1.6 Applications - Taxes

Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.

138) The city of Toronto had a property tax rate of approximately 1.529% on multiresidential buildings in 2015. If a multiresidential building had an estimated value of $ 12 500 000, how much property tax did the building's owners have to pay?

Answer: 0.01259(12500000) = 157375

Diff: 2 Type: SA Page Ref: 30-33

Topic: 1.6 Applications - Taxes

Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.



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139) Evaluate: $\frac{4 + 6(9-7)^2 + 2}{3 \times 5}$

Answer: $(4 + 6(2)^2 + 2)/15 = (4 + 6(4) + 2)/15 = (4 + 24 + 2)/15 = 30/15 = 2$
Diff: 2 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

140) Simplify: $6 \div 2 + 15 \times 2$
Answer: $3 + 30 = 33$
Diff: 1 Type: SA Page Ref: 5-6
Topic: 1.1 Basics of Arithmetic
Objective: 1-1: Simplify arithmetic expressions using the basic order of operations.

141) Turn $78\frac{54}{132}$% into a common fraction in lowest terms.

Answer: 69/88
Diff: 2 Type: SA Page Ref: 13-17
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

142) Express 93/44 as a percent.
Answer: 211.36%
Diff: 1 Type: SA Page Ref: 13-17
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

143) Compute 187% of 342.
Answer: 639.54
Diff: 1 Type: SA Page Ref: 13-17
Topic: 1.3 Percent
Objective: 1-2: Determine equivalent fractions, and convert fractions to decimals, decimals to percents, and vice versa.

144) Find the arithmetic average of the following data set: 2, 9, $\frac{7}{8}$, 34.02, 52, 1, $83\frac{3}{4}$, 0.5, 6, $\frac{108}{22}$.

Answer: $= (2 + 9 + 0.875 + 34.02 + 52 + 1 + 83.75 + 0.5 + 6 + 4.909)/10 = 19.405$
Diff: 2 Type: SA Page Ref: 17-24
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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145) Pooja has an annual salary of $98 351.00 and is paid biweekly. Her regular workweek is 32 hours.
a) What is Pooja's gross pay per pay period?
b) What is the hourly rate of pay?
c) What are the gross overtime earnings for Pooja if the overtime rate is one and three quarters the regular hourly rate of pay and she works 8 extra hours?
Answer:
a) Yearly salary = $98 351.00
Biweekly gross pay = 98 351/26 = $3782.73
b) Biweekly gross pay = $3782.73
Weekly gross pay = 3782.73/2 = $1891.37
Hourly rate = 1891.37/32 = $59.11
c) Hourly rate = $59.11
Gross overtime earnings = 59.11(1.75)(8) = $827.54
Diff: 3 Type: SA Page Ref: 24-32
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

146) Danny receives a commission of 13.4% on the first $5000 of his net sales, 14.1% on the next $3000, and 15.0% on any additional net sales for the month, and is entitled to drawings of up to $1750 per month. During February, Danny's gross sales amounted to $11 456 and sales returns and allowances of $512.
a) What is Danny's gross commission for the month?
b) If Danny drew $1235 in February, what is the amount due to him?
Answer:

| | | |
|---|---|---|
| a) Gross sales | = $11 456.00 | |
| Commission on first $5000 | = 0.134(5000) | = $670.00 |
| Commission on next $3000 | = 0.141(3000) | = $423 |
| Commission on additional sales | = 0.15(11456 - 8000) | = $518.40 |
| Total gross commission | | = $1611.40 |

b) 1611.40 - 1235 = $376.40
Diff: 3 Type: SA Page Ref: 24-32
Topic: 1.5 Applications - Payroll
Objective: 1-4: Determine gross earnings for employees remunerated by the payment of salaries, hourly wages, or commissions.

147) In 2018, Ashley's bike repair shop made a gross profit of $23 000, of which $4032 were GST-taxable expenses. How much did Ashley remit to the government in 2018?
Answer:

| | | | |
|---|---|---|---|
| GST collected: 5% of $23000 | = 0.05(23000) | = | $1150.00 |
| GST Paid: 5% of 4032 | = 0.05(4032) | = | - $201.60 |
| GST Remittance: | | = | $948.40 |

Diff: 1 Type: SA Page Ref: 32-36
Topic: 1.6 Applications - Taxes
Objective: 1-5: Through problem solving, compute GST, HST, PST, sales taxes, and property taxes.


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148) Suppose that in your Business Math course you receive the following grades (%):

| **Assessment** | **Grade Received** |
|---|---|
| Quiz 1 | 80% |
| Quiz 2 | 90% |
| Quiz 3 | 50% |
| Quiz 4 | 40% |
| Quiz 5 | 80% |
| Quiz 6 | 90% |
| Quiz 7 | 80% |
| Quiz 8 | 50% |
| Quiz 9 | 80% |
| Quiz 10 | 70% |
| Term Test 1 | 65% |
| Term Test 2 | 78% |
| Final Exam | 72% |

Each assessment category counts as following towards the final grade:

| **Assessments** | **Course Grade** |
|---|---|
| Quizzes (best 8 out of 10) | 20% |
| Tests (two; each 15%) | 30% |
| Final Exam | 50% |

a) What is your average quiz grade in this course?
b) What is your average grade for the course overall?

Answer:

a) Quiz Average = (80 + 90 + 80 + 90 + 80 + 50 + 80 + 70)/8 = 77.5%
b) Average course grade = [(77.5) 20 + (65)15 + (78)15 + (72)50] / (20 + 15 + 15 + 50)
= (1350 + 2145 + 3600)/100 = 70.95%

Diff: 3 Type: SA Page Ref: 17-24
Topic: 1.4 Applications - Averages
Objective: 1-3: Through problem solving, compute simple arithmetic and weighted averages.


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