

***Precalculus A Unit Circle Approach 4th edition Ratti
Test Bank***

SKU: 9780137552467-TEST-BANK

INSTRUCTOR'S TESTING MANUAL

JAMES LAPP

PRECALCULUS A UNIT CIRCLE APPROACH FOURTH EDITION

J. S. Ratti

TBEXAM.COM

University of South Florida

Marcus McWaters

University of South Florida

Leslaw A. Skrzypek

University of South Florida

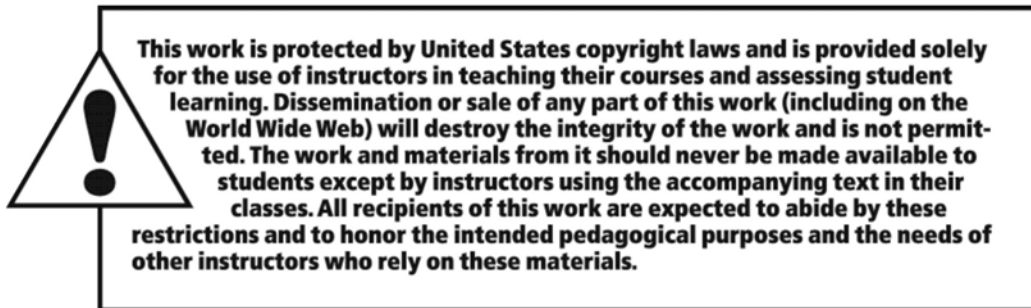
Jessica Bernards

Portland Community College

Wendy Fresh

Portland Community College





The author and publisher of this book have used their best efforts in preparing this book. These efforts include the development, research, and testing of the theories and programs to determine their effectiveness. The author and publisher make no warranty of any kind, expressed or implied, with regard to these programs or the documentation contained in this book. The author and publisher shall not be liable in any event for incidental or consequential damages in connection with, or arising out of, the furnishing, performance, or use of these programs.

Reproduced by Pearson from electronic files supplied by the author.

Copyright © 2023, 2018, 2014 Pearson Education, Inc.
Publishing as Pearson, 330 Hudson Street, NY, NY 10013

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. Printed in the United States of America.



ISBN-13: 978-0-13-755305-1
ISBN-10: 0-13-755305-6

CONTENTS

Test Forms A, B, C, and D are Free Response
Test Forms E and F are Multiple Choice

Chapter 1 Tests	1-1
Chapter 1 Answers.....	1-23
Chapter 2 Tests	2-1
Chapter 2 Answers.....	2-17
Chapter 3 Tests	3-1
Chapter 3 Answers.....	3-15
Chapter 4 Tests	4-1
Chapter 4 Answers.....	4-15
Chapter 5 Tests	5-1
Chapter 5 Answers.....	5-9
Chapter 6 Tests	6-1
Chapter 6 Answers.....	6-15
Chapter 7 Tests	7-1
Chapter 7 Answers.....	7-23
Chapter 8 Tests	8-1
Chapter 8 Answers.....	8-19
Chapter 9 Tests	9-1
Chapter 9 Answers.....	9-15
Chapter 10 Tests	10-1
Chapter 10 Answers.....	10-13
Appendix Tests	A-1
Appendix Answers.....	A-17

TBEXAM.COM

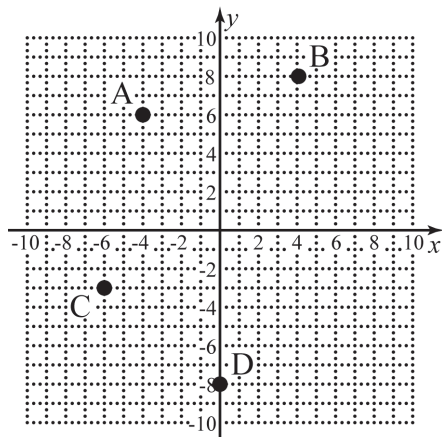
TBEXAM.COM

Chapter 1 Test Form A

Name _____

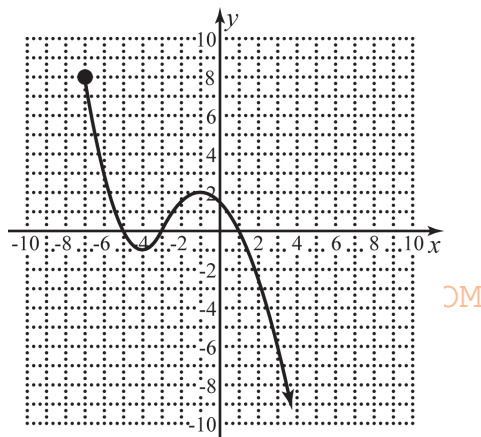
Ratti, Precalculus: A Unit Circle Approach, 4e

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between
- $(-4, 3)$
- and
- $(10, -11)$
- .

3) _____

- 4) Write the equation of the circle centered at
- $(-5, 7)$
- with a radius of 9.

4) _____

- 5) Find the equation of the line passing through
- $(5, -3)$
- with slope
- -2
- . Write the solution in slope-intercept form.

5) _____

- 6) Find the
- x
- and
- y
- intercepts of
- $y = x^2 - x - 20$
- .

6) _____

- 7) Determine the equation of the circle in standard form described by
- $x^2 - 4x + y^2 + 6y - 36 = 0$
- .

7) _____

- 8) Find the equation of the line passing through
- $(-3, 7)$
- and
- $(1, 5)$
- . Write the solution in slope-intercept form.

8) _____

- 9) Find the domain of
- $f(x) = \sqrt{x^2 + 2x - 15}$
- . Write the answer using interval notation.

9) _____

Chapter 1 Test Form A

Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*10) Find $f^{-1}(x)$ for $f(x) = 4x - 11$.

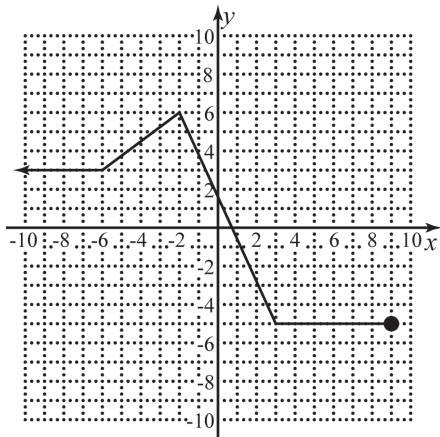
10) _____

11) Find the equation of the line parallel to $-3x + 2y = -5$ passing through $(3, -2)$.

Write the solution in slope-intercept form.

11) _____

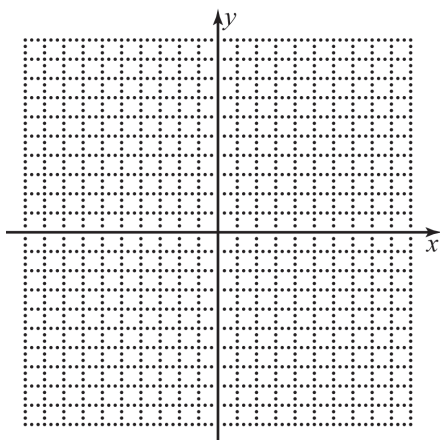
12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $x^4 + 3y^2 = 4$ possesses.

13) _____

14) For $f(x) = -2(x-3)^2 + 9$, list the transformations to the basic graph of the function.

14) _____

15) A company charges \$50 to design a custom coffee mug and \$13 each to make them. Find the function, $C(x)$, that represents the cost to purchase x coffee mugs and determine how many could be purchased with \$400.

15) _____

16) Given $f(x) = 2x^2 - 5$ and $g(x) = \sqrt{x-5}$, find $(f \circ g)(x)$, and determine its domain.

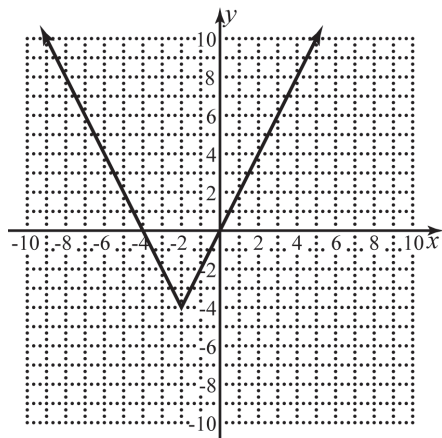
16) _____

Chapter 1 Test Form A

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

- 17) Write the formula for the graph of
- $f(x)$
- below.

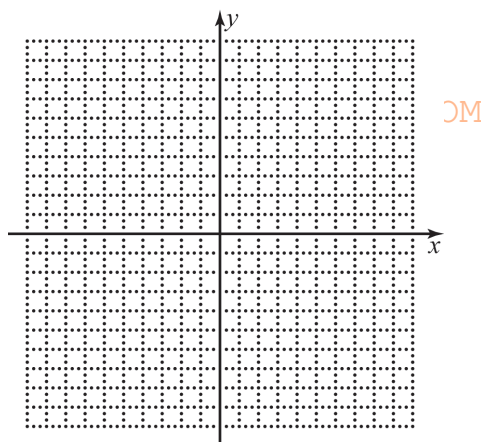


17) _____

- 18) Find the average rate of change of
- $f(x) = x^2 + 9$
- as
- x
- changes from
- $a = -1$
- to
- $b = 5$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} -x-1 & \text{if } x \leq 3 \\ 5 & \text{if } x > 3 \end{cases}$
- . Find the value of
- $f(-3)$
- ,
- $f(3)$
- , and
- $f(6)$
- .



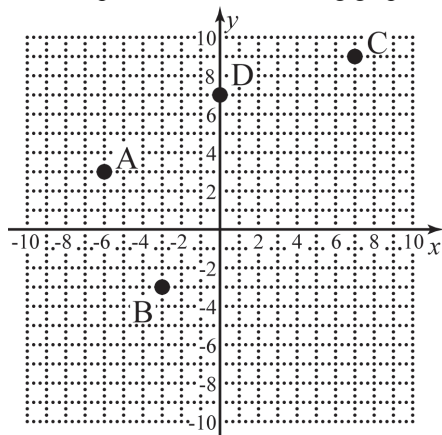
19) _____

Chapter 1 Test Form B

Name _____

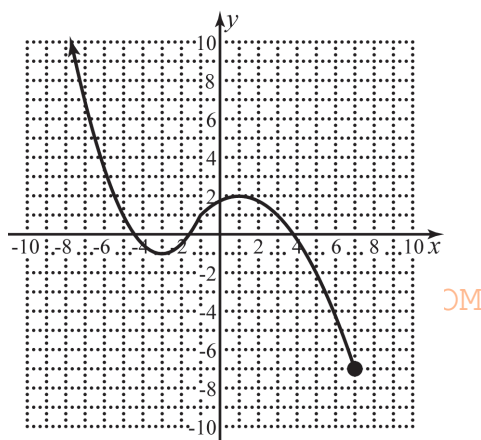
Ratti, Precalculus: A Unit Circle Approach, 4e

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between
- $(5, -7)$
- and
- $(1, 1)$
- .

3) _____

- 4) Write the equation of the circle centered at
- $(7, -9)$
- with a radius of 6.

4) _____

- 5) Find the equation of the line passing through
- $(-4, 3)$
- with slope 5. Write the solution in slope-intercept form.

5) _____

- 6) Find the
- x
- and
- y
- intercepts of
- $y = \sqrt{5x + 100}$
- .

6) _____

- 7) Determine the equation of the circle in standard form described by
- $x^2 + 10x + y^2 - 8y + 5 = 0$
- .

7) _____

- 8) Find the equation of the line passing through
- $(4, 1)$
- and
- $(-1, -3)$
- . Write the solution in slope-intercept form.

8) _____

- 9) Find the domain of
- $f(x) = \sqrt{x^2 + 4x - 12}$
- . Write the answer using interval notation.

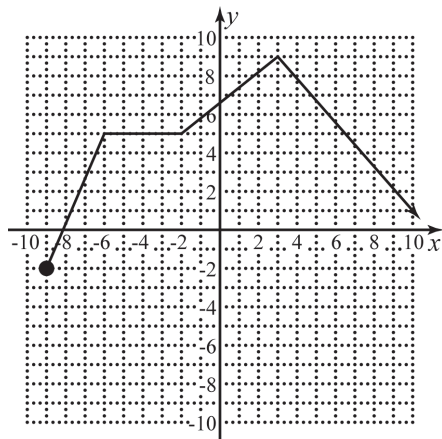
9) _____

Chapter 1 Test Form B

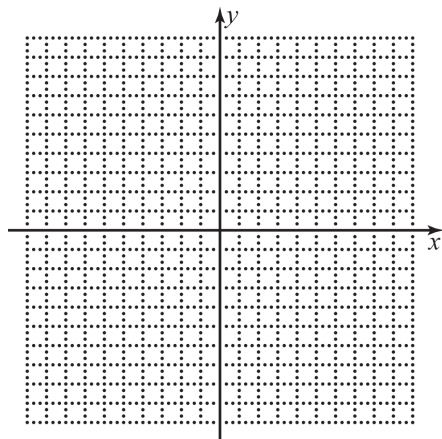
Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*10) Find $f^{-1}(x)$ for $f(x) = 3x - 8$. 10) _____11) Find the equation of the line perpendicular to $2x + 3y = 7$ passing through $(4, 7)$.
Write the solution in slope-intercept form. 11) _____

12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $y = 5x^2 - x^4$ possesses. 13) _____14) For $f(x) = \frac{1}{2}(x+5)^2 - 4$, list the transformations to the basic graph and graph the function.

14) _____

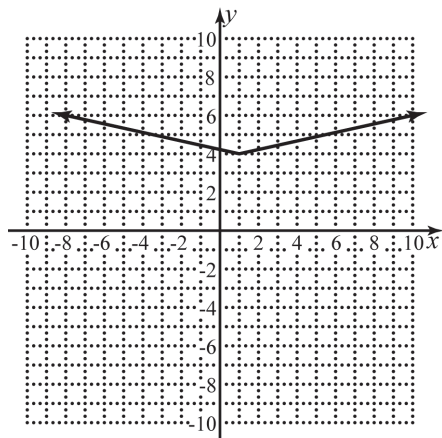
15) A company charges \$40 to design a custom coffee mug and \$11 each to make them. Find the function, $C(x)$, that represents the cost to purchase x coffee mugs and determine how many could be purchased with \$300. 15) _____16) Given $f(x) = \frac{x^2 + 1}{x^2 + 7}$ and $g(x) = \sqrt{x + 7}$, find $(f \circ g)(x)$, and determine its domain. 16) _____

Chapter 1 Test Form B

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

- 17) Write the formula for the graph of
- $f(x)$
- below.

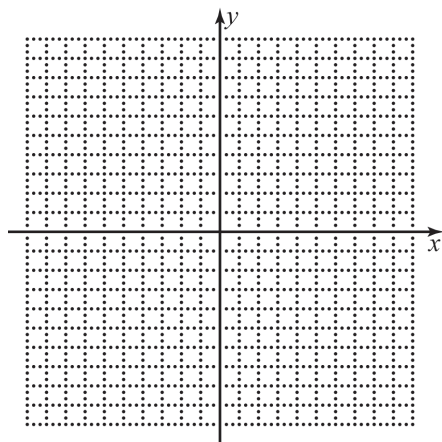


17) _____

- 18) Find the average rate of change of
- $f(x) = -3x^3 - 14$
- as
- x
- changes from
- $a = -1$
- to
- $b = 2$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} -x+3 & \text{if } x > -2 \\ -3 & \text{if } x \leq -2 \end{cases}$
- . Find the values of
- $f(-4)$
- ,
- $f(-2)$
- , and
- $f(2)$
- .



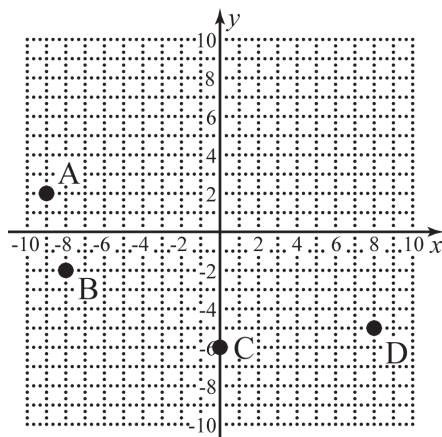
19) _____

Chapter 1 Test Form C

Name _____

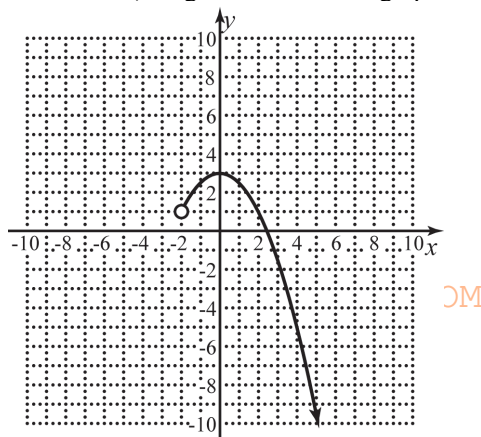
Ratti, Precalculus: A Unit Circle Approach, 4e

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between
- $(8, 5)$
- and
- $(4, -9)$
- .

3) _____

- 4) Write the equation of the circle centered at
- $(-2, 9)$
- with a radius of 3.

4) _____

- 5) Find the equation of the line passing through
- $(1, -2)$
- with slope
- -3
- . Write the solution in slope-intercept form.

5) _____

- 6) Find the
- x
- and
- y
- intercepts of
- $y = \sqrt[5]{2x - 32}$
- .

6) _____

- 7) Determine the equation of the circle in standard form described by
- $x^2 - 6x + y^2 + 10y + 9 = 0$
- .

7) _____

- 8) Find the equation of the line passing through
- $(-2, 1)$
- and
- $(4, -4)$
- . Write the solution in slope-intercept form.

8) _____

- 9) Find the domain of
- $f(x) = \sqrt{x^2 + 2x - 24}$
- . Write the answer using interval notation.

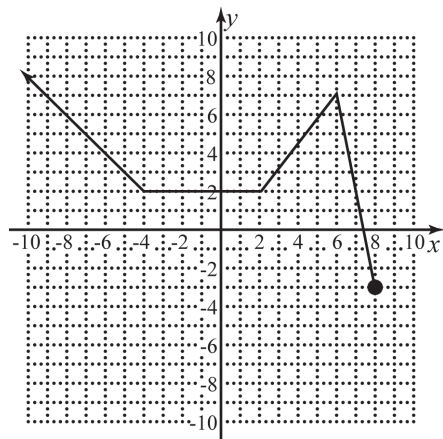
9) _____

Chapter 1 Test Form C

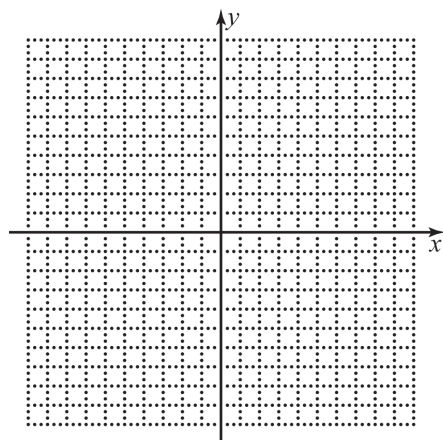
Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*10) Find $f^{-1}(x)$ for $f(x) = 8x - 5$. 10) _____11) Find the equation of the line parallel to $5x - 3y = 4$ passing through $(-10, 3)$.
Write the solution in slope-intercept form. 11) _____

12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $x^3y^2 = 4 - 8x$ possesses. 13) _____14) For $f(x) = 3(x+2)^2 - 9$, list the transformations to the basic graph and graph the function.

14) _____

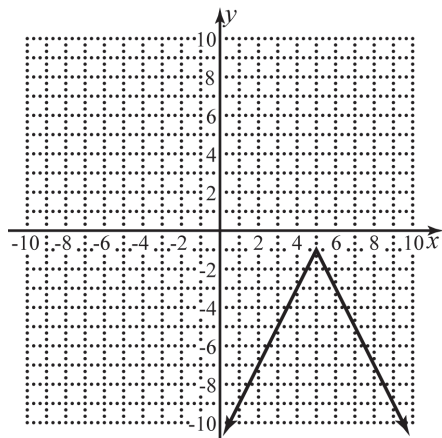
15) A company charges \$60 to design a custom coffee mug and \$14 each to make them. Find the function, $C(x)$, that represents the cost to purchase x coffee mugs and determine how many could be purchased with \$450. 15) _____16) Given $f(x) = 3x^2 + 2$ and $g(x) = \sqrt{7-x}$, find $(f \circ g)(x)$, and determine its domain. 16) _____

Chapter 1 Test Form C

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

- 17) Write the formula for the graph of
- $f(x)$
- below.

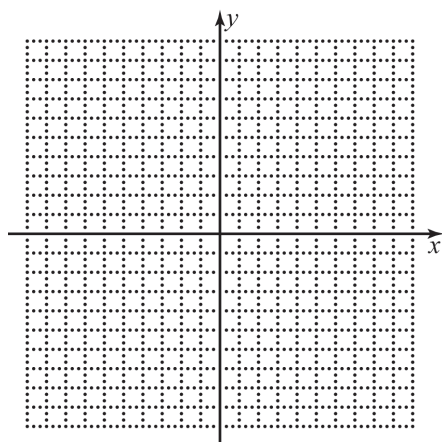


17) _____

- 18) Find the average rate of change of
- $f(x) = 11 - 5x^2$
- as
- x
- changes from
- $a = -3$
- to
- $b = 5$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} 3 & \text{if } x > 4 \\ -x+1 & \text{if } x \leq 4 \end{cases}$
- . Find the values of
- $f(-4)$
- ,
- $f(4)$
- , and
- $f(8)$
- .



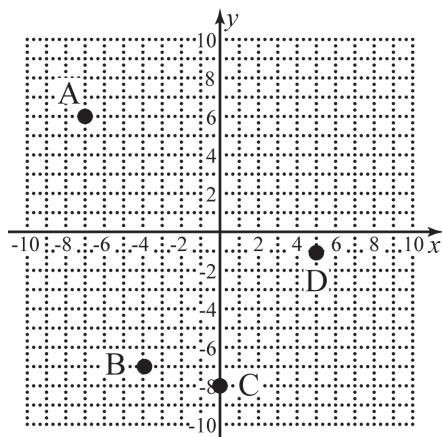
19) _____

Chapter 1 Test Form D

Name _____

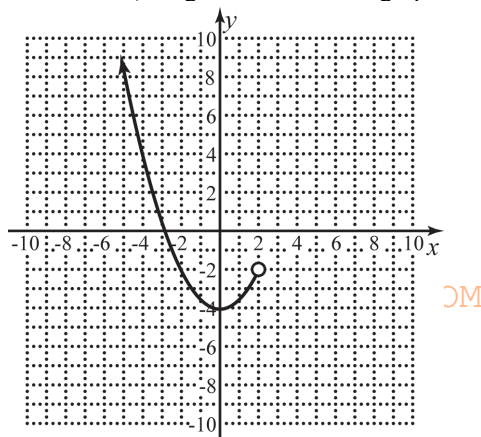
Ratti, Precalculus: A Unit Circle Approach, 4e

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between
- $(-6, 1)$
- and
- $(4, -9)$
- .

3) _____

- 4) Write the equation of the circle centered at
- $(-7, 8)$
- with a radius of 11.

4) _____

- 5) Find the equation of the line passing through
- $(-2, 3)$
- with slope 4. Write the solution in slope-intercept form.

5) _____

- 6) Find the
- x
- and
- y
- intercepts of
- $y = x^3 + 27$
- .

6) _____

- 7) Determine the equation of the circle in standard form described by
- $x^2 - 14x + y^2 + 8y + 56 = 0$
- .

7) _____

- 8) Find the equation of the line passing through
- $(-1, -2)$
- and
- $(4, 2)$
- . Write the solution in slope-intercept form.

8) _____

- 9) Find the domain of
- $f(x) = \sqrt{x^2 - 3x - 10}$
- . Write the answer using interval notation.

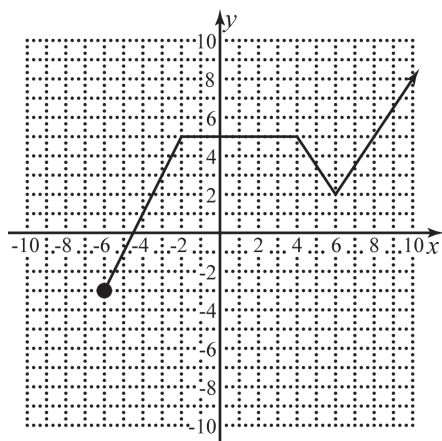
9) _____

Chapter 1 Test Form D

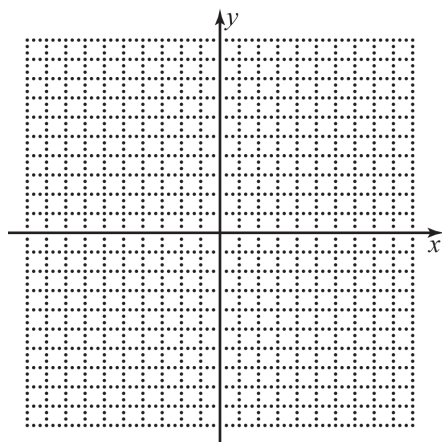
Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*10) Find $f^{-1}(x)$ for $f(x) = 11 - 5x$. 10) _____11) Find the equation of the line perpendicular to $-4x - 3y = 5$ passing through $(-8, 5)$. Write the solution in slope-intercept form. 11) _____

12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $y = 2x^5 + 7x^3$ possesses. 13) _____14) For $f(x) = -2(x+5)^2 + 6$, list the transformations to the basic graph and graph the function.

14) _____

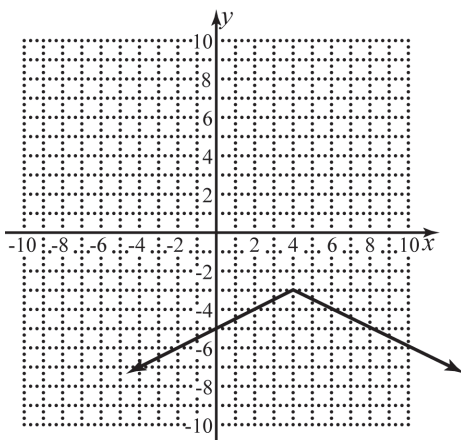
15) A company charges \$45 to design a custom coffee mug and \$12 each to make them. Find the function, $C(x)$, that represents the cost to purchase x coffee mugs and determine how many could be purchased with \$500. 15) _____16) Given $f(x) = \frac{x^2}{x^2 + 3}$ and $g(x) = \sqrt{x - 2}$, find $(f \circ g)(x)$, and determine its domain. 16) _____

Chapter 1 Test Form D

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

- 17) Write the formula for the graph of
- $f(x)$
- below.

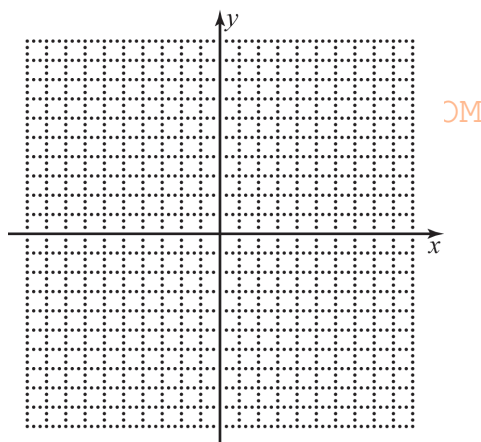


17) _____

- 18) Find the average rate of change of
- $f(x) = -2x^2 - 7$
- as
- x
- changes from
- $a = -5$
- to
- $b = 4$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} -x+3 & \text{if } x < 1 \\ -5 & \text{if } x \geq 1 \end{cases}$
- . Find the values of
- $f(-1)$
- ,
- $f(1)$
- , and
- $f(5)$
- .



19) _____

Chapter 1 Test Form E

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

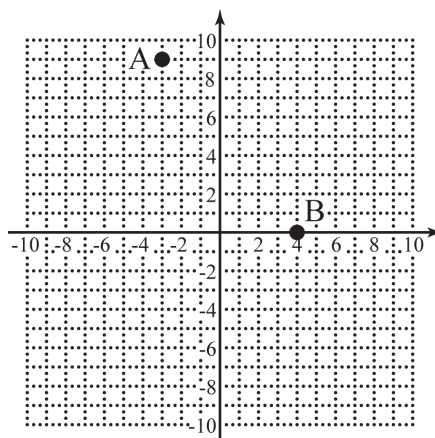
In exercises 1–2, refer to the graph to the right.

1) What are the coordinates of point A?

- a) $(-3, 9)$ b) $(3, -9)$
 c) $(9, -3)$ d) $(-9, 3)$

2) What are the coordinates of point B?

- a) $(-4, 0)$ b) $(4, 0)$
 c) $(0, 4)$ d) $(0, -4)$



1) _____

2) _____

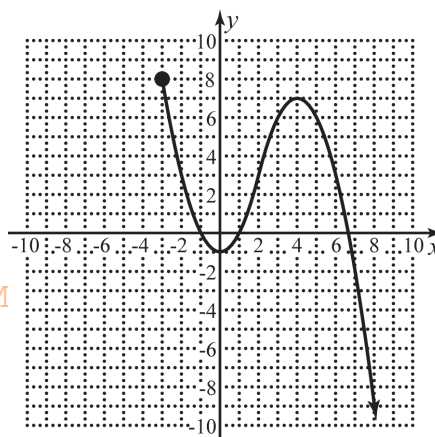
In exercises 3–4, refer to the graph to the right.

3) Determine the domain of the function.

- a) $(-3, \infty)$ b) $[-3, \infty)$
 c) $(-\infty, 8)$ d) $(-\infty, 8]$

4) Determine the range of the function.

- a) $(-3, \infty)$ b) $[-3, \infty)$
 c) $(-\infty, 8)$ d) $(-\infty, 8]$



3) _____

4) _____

TBEXAM

In exercises 5–6 use the points $(-2, 3)$ and $(6, -5)$.

5) Find the distance between the points.

- a) $4\sqrt{5}$ b) 4 c) $2\sqrt{13}$ d) $8\sqrt{2}$

6) Find the midpoint between the points.

- a) $(4, -4)$ b) $(2, -1)$ c) $(-4, 4)$ d) $(-2, 1)$

7) Write the equation of the circle centered at $(7, -1)$ with a radius of 2.

- a) $(x+7)^2 + (y-1)^2 = 4$ b) $(x-7)^2 + (y+1)^2 = 4$
 c) $(x+7)^2 + (y-1)^2 = 2$ d) $(x-7)^2 + (y+1)^2 = 2$

8) Find the equation of the line passing through $(-1, 4)$ with slope 3.

- a) $y = 3x + 7$ b) $y = 3x + 4$ c) $y = 3x - 1$ d) $y = 3x - 13$

5) _____

6) _____

7) _____

8) _____

Chapter 1 Test Form E

Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*9) Find the coordinates of the x - and y -intercepts of $y = x^2 - x - 42$. 9) _____

- a) $(42, 0), (0, -6), (0, 7)$ b) $(42, 0), (0, -7), (0, 6)$
 c) $(0, -42), (-7, 0), (6, 0)$ d) $(0, -42), (-6, 0), (7, 0)$

10) Determine the equation of the circle described by $x^2 - 8x + y^2 + 10y - 59 = 0$. 10) _____

- a) $(x-8)^2 + (y+10)^2 = 59$ b) $(x-4)^2 + (y+5)^2 = 41$
 c) $(x-4)^2 + (y+5)^2 = 100$ d) $(x-4)^2 + (y+5)^2 = 59$

11) Find the equation of the line passing through $(-4, 3)$ and $(2, 4)$. 11) _____

- a) $y = 6x + 27$ b) $y = -6x - 21$ c) $y = \frac{1}{6}x + \frac{11}{3}$ d) $y = -\frac{1}{6}x + \frac{7}{3}$

12) Find the domain of $f(x) = \sqrt{x^2 + 5x - 14}$. 12) _____

- a) $[-7, 2]$ b) $[-2, 7]$
 c) $(-\infty, -7] \cup [2, \infty)$ d) $(-\infty, -2] \cup [7, \infty)$

13) Given $f(x) = \sqrt[3]{x-27}$, find $f^{-1}(x)$. 13) _____

- a) $f^{-1}(x) = \sqrt[3]{x+27}$ b) $f^{-1}(x) = \frac{1}{\sqrt[3]{x-27}}$
 c) $f^{-1}(x) = x^3 + 27$ d) $f^{-1}(x) = -\sqrt[3]{x-27}$

14) Find the equation of the line parallel to $2x + 5y = 13$ passing through $(5, -3)$. 14) _____

- a) $y = \frac{5}{2}x - \frac{31}{2}$ b) $y = \frac{2}{5}x - 5$ c) $y = -\frac{5}{2}x + \frac{19}{2}$ d) $y = -\frac{2}{5}x - 1$

In exercises 15–17, refer to the graph to the right.

15) When is the graph increasing? 15) _____

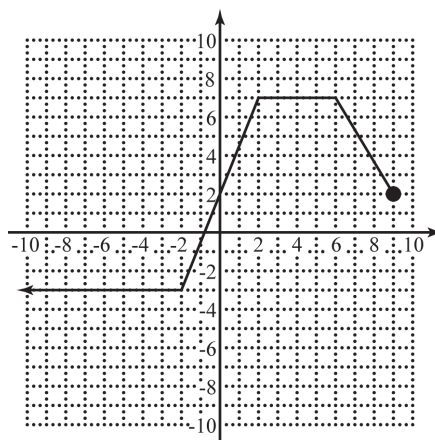
- a) $(-2, 2)$ b) $(6, 9)$
 c) $(-\infty, -2) \cup (2, 6)$ d) Never

16) When is the graph decreasing? 16) _____

- a) $(-2, 2)$ b) $(6, 9)$
 c) $(-\infty, -2) \cup (2, 6)$ d) Never

17) When is the graph constant? 17) _____

- a) $(-2, 2)$ b) $(6, 9)$
 c) $(-\infty, -2) \cup (2, 6)$ d) Never

18) Determine which symmetries the graph of $xy^2 + x^3 = xy^4$ possesses. 18) _____

- a) x -axis b) y -axis c) origin d) all

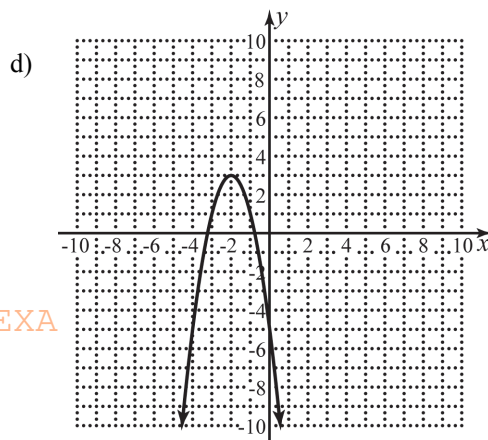
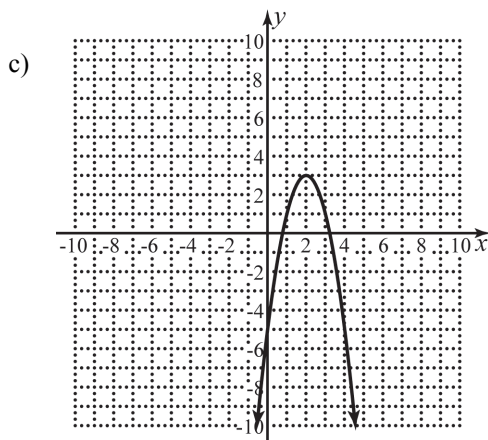
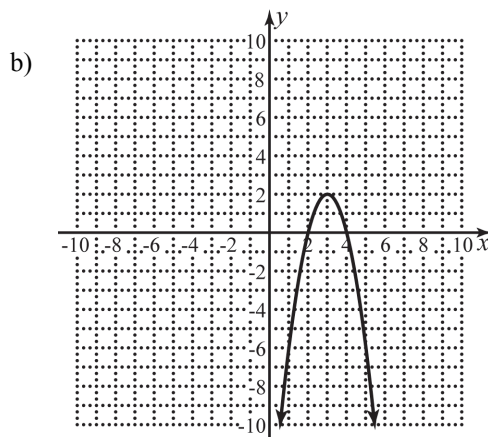
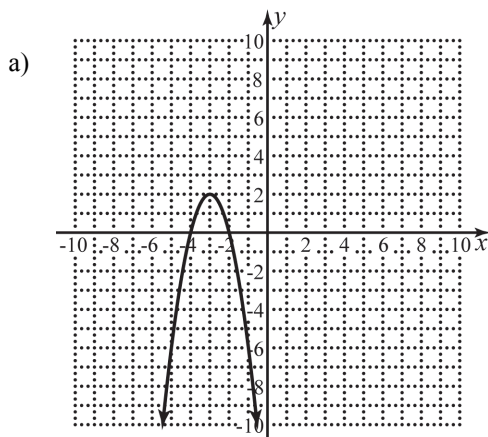
Chapter 1 Test Form E

Name _____

Ratti, *Precalculus: A Unit Circle Approach*, 4e

19) Graph $f(x) = -2(x-3)^2 + 2$.

19) _____



TBEXAM.COM

20) Which of the following is not a transformation of the basic function in $g(x) = \frac{1}{2}(x+3)^2 - 1$?

20) _____

- a) vertical shift of 1 down b) vertical reflection
c) vertical stretch of $\frac{1}{2}$ d) horizontal shift of 3 to the left

21) A company charges \$35 to design a custom coffee mug and \$9 each to make them. Find the function, $C(x)$, that represents the cost to purchase x coffee mugs and determine how many could be purchased with \$250.

21) _____

- a) $C(x) = 35x + 9$; 13 mugs b) $C(x) = 35x + 9$; 14 mugs
c) $C(x) = 9x + 35$; 23 mugs d) $C(x) = 9x + 35$; 24 mugs

22) Given $f(x) = 7x^2 + 4$ and $g(x) = \sqrt{8-x}$, find $(f \circ g)(x)$ and determine its domain.

22) _____

- a) $\sqrt{4-7x^2}$; $(-\infty, \infty)$ b) $\sqrt{4-7x^2}$; $(-\infty, 8]$
c) $60-7x$; $(-\infty, 8]$ d) $60-7x$; $[8, \infty)$

Chapter 1 Test Form E

Name _____

Ratti, *Precalculus: A Unit Circle Approach*, 4e

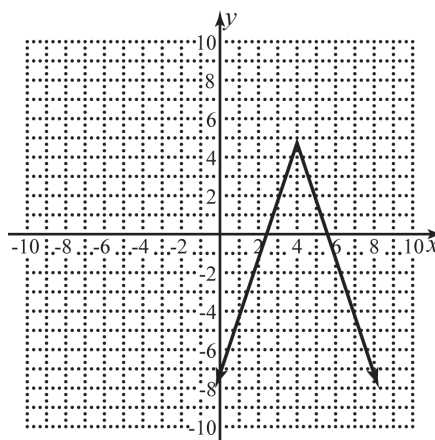
23) Write the formula for the function graphed to the right.

a) $f(x) = -3|x+4|+5$

b) $f(x) = \frac{1}{3}|x-4|+5$

c) $f(x) = -2|x-4|+5$

d) $f(x) = -3|x-4|+5$



23) _____

24) Find the average rate of change of $f(x) = x^2 - 2x$ as x changes from $a = -4$ to $b = 3$.

a) $27/7$

b) $-5/7$

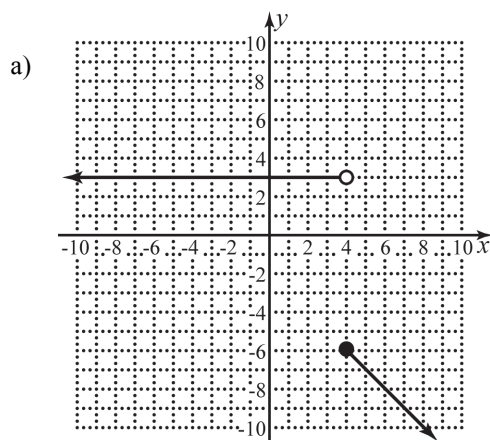
c) -3

d) 21

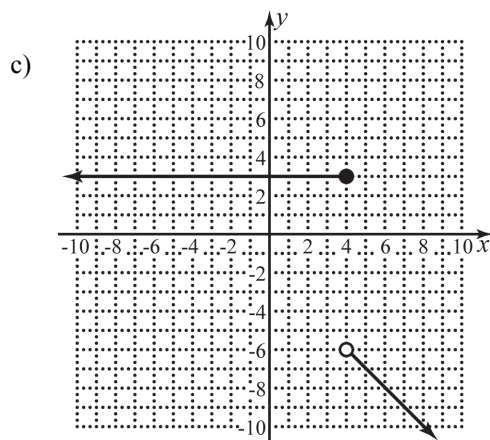
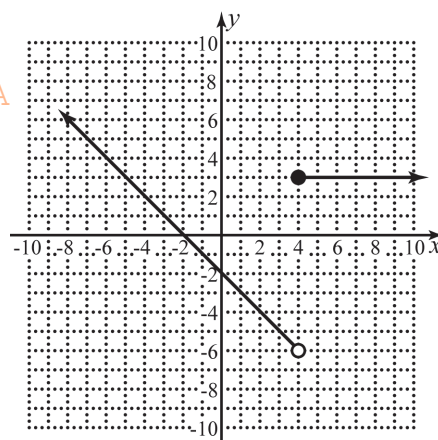
24) _____

In exercises 25–27, use $f(x) = \begin{cases} -x-2 & \text{if } x \leq 4 \\ 3 & \text{if } x > 4 \end{cases}$.25) Graph $f(x)$.

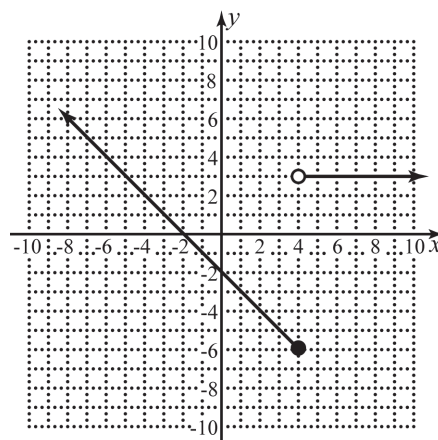
25) _____



b) BEXA



d)



Chapter 1 Test Form E

Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*26) Determine the value of $f(4)$.

26) _____

a) 3

b) -6

c) 2

d) -1

27) Determine the value of $f(-7)$.

27) _____

a) 5

b) -9

c) 3

d) -5

TBEXAM.COM

Chapter 1 Test Form F

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

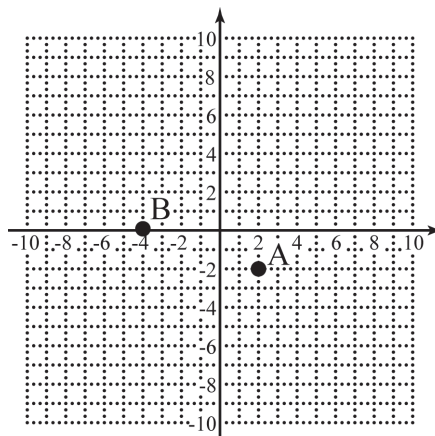
In exercises 1–2, refer to the graph to the right.

1) What are the coordinates of point A?

- a) $(2, -2)$ b) $(-2, 2)$
 c) $(-2, -2)$ d) $(2, 2)$

2) What are the coordinates of point B?

- a) $(-4, 0)$ b) $(4, 0)$
 c) $(0, 4)$ d) $(0, -4)$



1) _____

2) _____

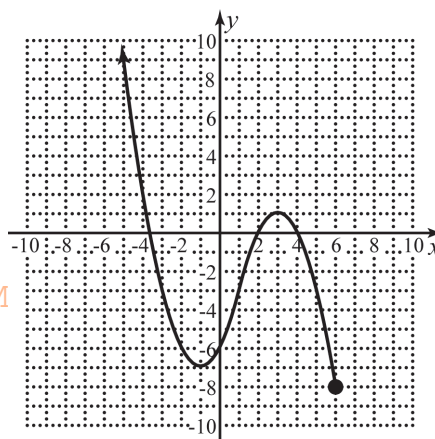
In exercises 3–4, refer to the graph to the right.

3) Determine the domain of the function.

- a) $(-\infty, 6]$ b) $(-\infty, 6)$
 c) $[-8, \infty)$ d) $(-8, \infty)$

4) Determine the range of the function.

- a) $(-\infty, 6]$ b) $(-\infty, 6)$
 c) $[-8, \infty)$ d) $(-8, \infty)$



3) _____

4) _____

TBEXAM

In exercises 5–6, use the points $(4, -4)$ and $(-8, 10)$.

5) Find the distance between the points.

- a) $2\sqrt{85}$ b) $2\sqrt{13}$ c) $\sqrt{26}$ d) $2\sqrt{10}$

6) Find the midpoint between the points.

- a) $(-2, 3)$ b) $(6, -7)$ c) $(-7, 6)$ d) $(2, -3)$

7) Write the equation of the circle centered at $(-5, 2)$ with a radius of 5.

- a) $(x-5)^2 + (y+2)^2 = 5$ b) $(x-5)^2 + (y+2)^2 = 25$
 c) $(x+5)^2 + (y-2)^2 = 5$ d) $(x+5)^2 + (y-2)^2 = 25$

8) Find the equation of the line passing through $(-5, 4)$ with slope -3 .

- a) $y = -3x + 17$ b) $y = -3x - 1$ c) $y = -3x + 4$ d) $y = -3x - 11$

5) _____

6) _____

7) _____

8) _____

Chapter 1 Test Form F

Name _____

*Ratti, Precalculus: A Unit Circle Approach, 4e*9) Find the coordinates of the x - and y -intercepts of $y = \sqrt[3]{9x+216}$. 9) _____

- a) $(24, 0), (0, 6)$ b) $(-24, 0), (0, 6)$ c) $(0, 24), (6, 0)$ d) $(0, -24), (6, 0)$

10) Determine the equation of the circle described by $x^2 + 6x + y^2 - 8y - 56 = 0$. 10) _____

- a) $(x+6)^2 + (y-8)^2 = 56$ b) $(x+3)^2 + (y-4)^2 = 81$
 c) $(x+3)^2 + (y-4)^2 = 25$ d) $(x+3)^2 + (y-4)^2 = 56$

11) Find the equation of the line passing through $(-3, -2)$ and $(2, 5)$. 11) _____

- a) $y = -\frac{7}{5}x + \frac{39}{5}$ b) $y = \frac{7}{5}x + \frac{11}{5}$ c) $y = -\frac{5}{7}x + \frac{45}{7}$ d) $y = \frac{5}{7}x - \frac{25}{7}$

12) Find the domain of $f(x) = \sqrt{x^2 - 5x - 24}$. Write your answer using interval notation. 12) _____

- a) $[-8, 3]$ b) $[-3, 8]$
 c) $(-\infty, -8] \cup [3, \infty)$ d) $(-\infty, -3] \cup [8, \infty)$

13) Given $f(x) = \frac{4}{x-5}$, find $f^{-1}(x)$. 13) _____

- a) $f^{-1}(x) = \frac{5x+4}{x}$ b) $f^{-1}(x) = \frac{x-5}{4}$
 c) $f^{-1}(x) = -\frac{4}{x-5}$ d) $f^{-1}(x) = \frac{4}{x+5}$

14) Find the equation of the line perpendicular to $-4x + 3y = 11$ passing through $(6, 5)$. 14) _____

- a) $y = -\frac{3}{4}x + \frac{19}{2}$ b) $y = \frac{3}{4}x + \frac{1}{2}$ c) $y = -\frac{1}{4}x + \frac{13}{2}$ d) $y = \frac{1}{4}x + \frac{7}{2}$

In exercises 15–17, refer to the graph to the right.

15) When is the graph increasing? 15) _____

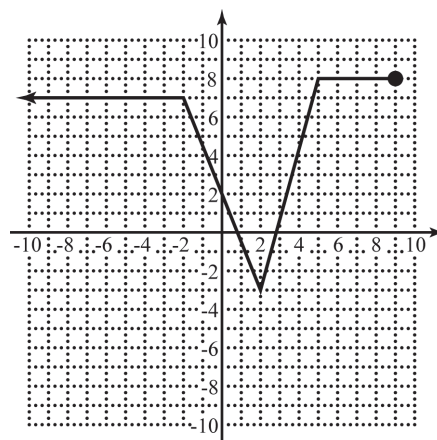
- a) $(-\infty, -2) \cup (5, 9)$ b) $(2, 5)$
 c) $(-2, 2)$ d) Never

16) When is the graph decreasing? 16) _____

- a) $(-\infty, -2) \cup (5, 9)$ b) $(2, 5)$
 c) $(-2, 2)$ d) Never

17) When is the graph constant? 17) _____

- a) $(-\infty, -2) \cup (5, 9)$ b) $(2, 5)$
 c) $(-2, 2)$ d) Never

18) Determine which symmetries the graph of $x^2y^2 - y^4 = x$ possesses. 18) _____

- a) x -axis b) y -axis c) origin d) all

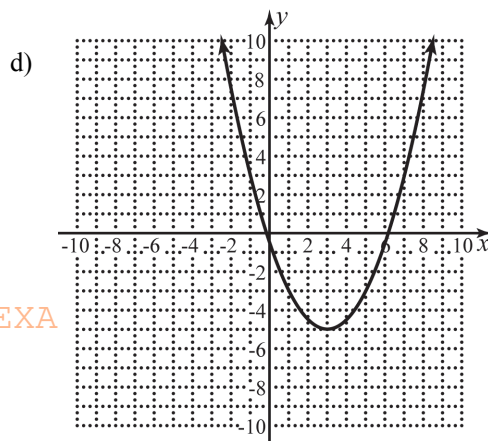
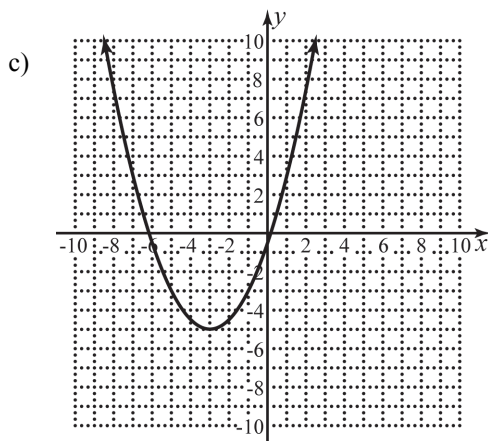
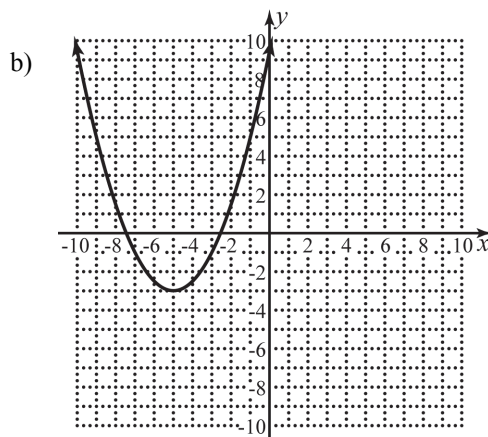
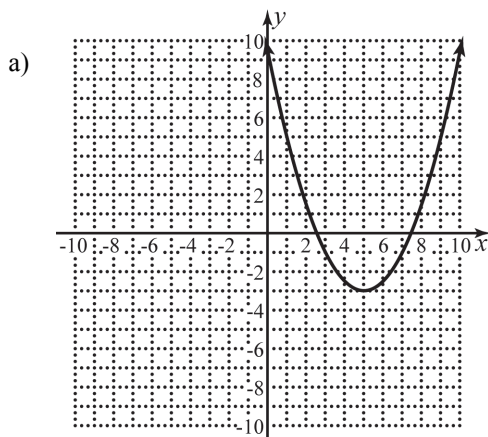
Chapter 1 Test Form F

Name _____

Ratti, *Precalculus: A Unit Circle Approach*, 4e

19) Graph $f(x) = \frac{1}{2}(x+3)^2 - 5$.

19) _____



TBEXAM.COM

20) Which of the following is not a transformation of the basic function in $g(x) = -3(x-2)^2 + 7$?

20) _____

- a) vertical stretch of $\frac{1}{3}$ b) vertical reflection
c) horizontal shift of 2 to the right d) vertical shift of 7 up

21) A company charges \$45 to design a custom coffee mug and \$14 each to make them. Find the function, $C(x)$, that represents the cost to purchase x coffee mugs and determine how many could be purchased with \$350.

21) _____

- a) $C(x) = 45x + 14$; 7 mugs b) $C(x) = 45x + 14$; 8 mugs
c) $C(x) = 14x + 45$; 22 mugs d) $C(x) = 14x + 45$; 21 mugs

22) Given $f(x) = \frac{x^2 - 3}{x^2 + 2}$ and $g(x) = \sqrt{x+3}$, find $(f \circ g)(x)$ and determine its domain.

22) _____

- a) $\sqrt{\frac{4x^2 + 3}{x^2 + 2}}$; $(-\infty, \infty)$ b) $\sqrt{\frac{4x^2 + 3}{x^2 + 2}}$; $[-3, \infty)$
c) $\frac{x}{x+5}$; $(-\infty, -3]$ d) $\frac{x}{x+5}$; $[-3, \infty)$

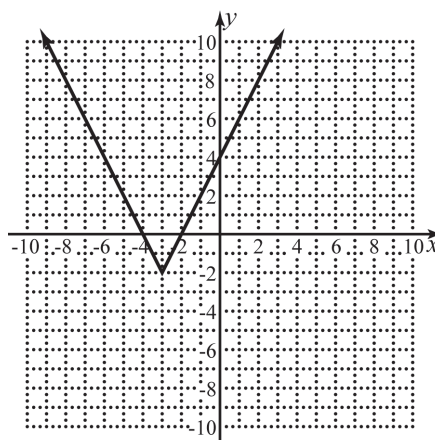
Chapter 1 Test Form F

Name _____

Ratti, *Precalculus: A Unit Circle Approach*, 4e

23) Write the formula for the function graphed to the right.

- a) $f(x) = -2|x+3| - 2$
 b) $f(x) = 2|x+3| - 2$
 c) $f(x) = \frac{1}{2}|x+3| - 2$
 d) $f(x) = 2|x-3| - 2$



23) _____

24) Find the average rate of change of $f(x) = x^3 + 8x$ as x changes from $a = -2$ to $b = 1$.

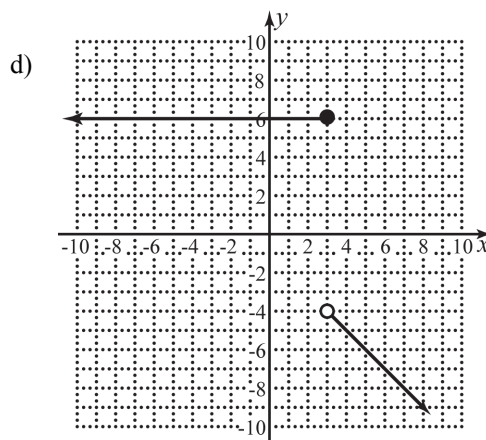
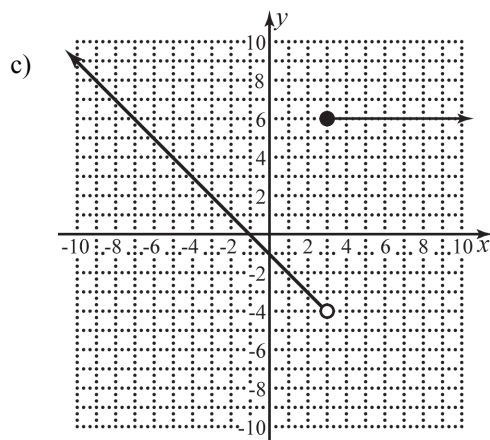
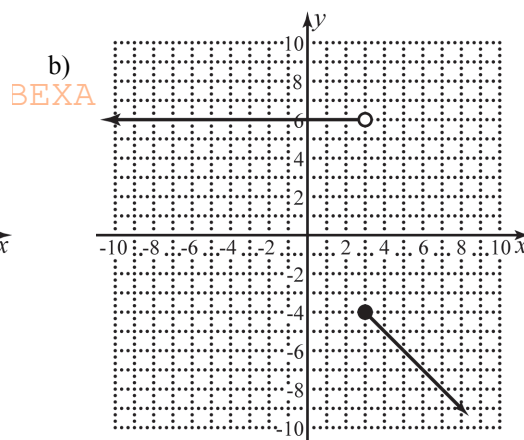
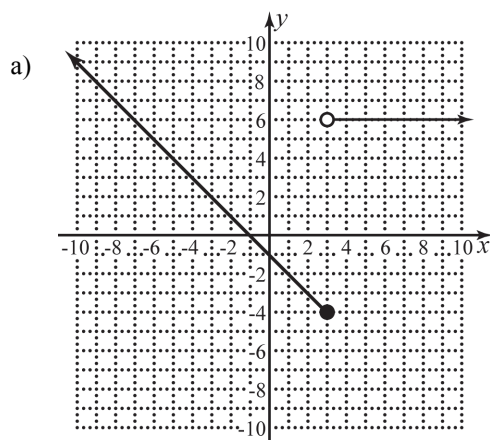
- a) -33 b) $1/3$ c) -5 d) 11

24) _____

In exercises 25–27, use $f(x) = \begin{cases} -x-1 & \text{if } x \geq 3 \\ 6 & \text{if } x < 3 \end{cases}$.

25) Graph $f(x)$.

25) _____



Chapter 1 Test Form F

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

26) Determine the value of $f(3)$.

26) _____

a) 6

b) -4

c) 2

d) -2

27) Determine the value of $f(8)$.

27) _____

a) -9

b) 7

c) 6

d) 2

TBEXAM.COM

Ratti, *Precalculus: A Unit Circle Approach, 4e*
Chapter 1 Tests

Answers

Form A

1) A) $(-4, 6)$; B) $(4, 8)$; C) $(-6, -3)$; D) $(0, -8)$

2) a) $[-7, \infty)$; b) $(-\infty, 8]$

3) Distance: $14\sqrt{2}$; Midpoint: $(3, -4)$

4) $(x+5)^2 + (y-7)^2 = 81$

5) $y = -2x + 7$

6) $(-4, 0), (5, 0), (0, -20)$

7) $(x-2)^2 + (y+3)^2 = 49$

8) $y = -\frac{1}{2}x + \frac{11}{2}$

9) $(-\infty, -5] \cup [3, \infty)$

10) $f^{-1}(x) = \frac{x+11}{4}$

11) $y = \frac{3}{2}x - \frac{13}{2}$

12) a) $(-6, -2)$; b) $(-2, 3)$; c) $(-\infty, -6) \cup (3, 9)$

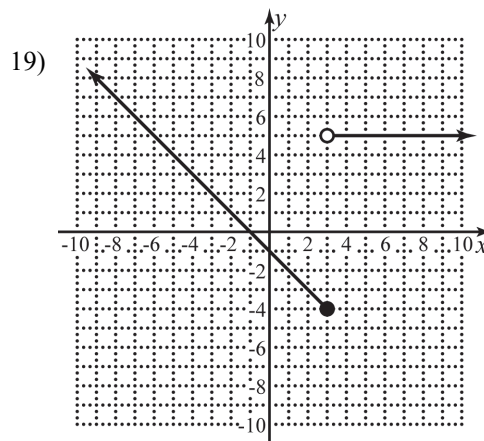
13) x -axis, y -axis, origin

15) $C(x) = 13x + 50$; 26 mugs

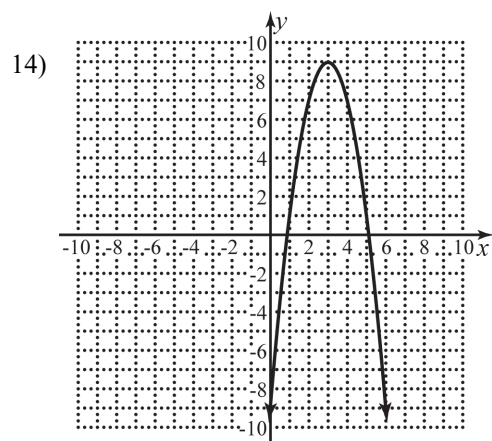
16) $(f \circ g)(x) = 2x - 15$; $[5, \infty)$

17) $f(x) = 2|x+2| - 4$

18) 4



$f(-3) = 2, f(3) = -4, f(6) = 5$



Horizontal Shift: Right 3

Vertical Shift: Up 9

Vertical Stretch: 2

Vertical Reflection: Yes

Ratti, *Precalculus: A Unit Circle Approach*, 4e
Chapter 1 Tests

Answers

Form B

1) A) $(-6, 3)$; B) $(-3, -3)$; C) $(7, 9)$; D) $(0, 7)$

2) a) $(-\infty, 7]$; b) $[-7, \infty)$

3) Distance: $4\sqrt{5}$; Midpoint: $(3, -3)$

4) $(x-7)^2 + (y+9)^2 = 36$

5) $y = 5x + 23$

6) $(-20, 0), (0, 10)$

7) $(x+5)^2 + (y-4)^2 = 36$

8) $y = \frac{4}{5}x - \frac{11}{5}$

9) $(-\infty, -6] \cup [2, \infty)$

10) $f^{-1}(x) = \frac{x+8}{3}$

11) $y = \frac{3}{2}x + 1$

12) a) $(-9, -6) \cup (-2, 3)$; b) $(3, \infty)$; c) $(-6, -2)$

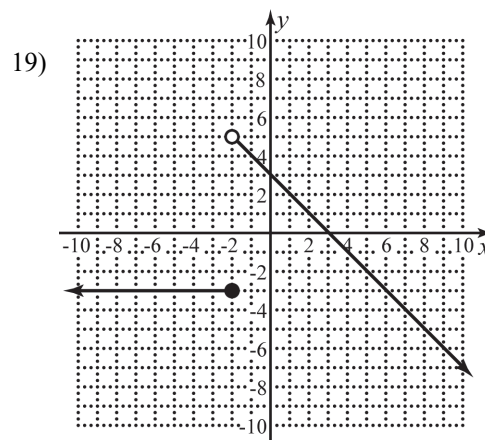
13) y -axis

15) $C(x) = 11x + 40$; 23 mugs

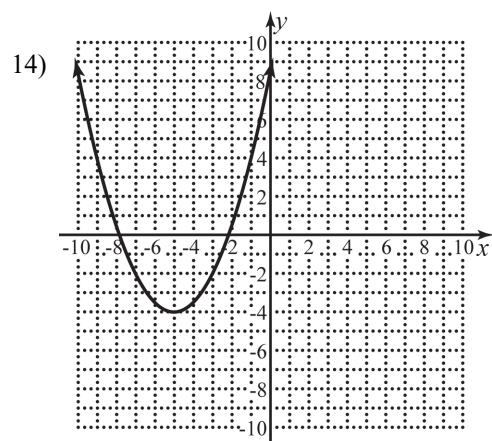
16) $(f \circ g)(x) = \frac{x+8}{x+14}$; $[-7, \infty)$

17) $f(x) = \frac{1}{5}|x-1| + 4$

18) -9



$f(-4) = -3, f(-2) = -3, f(2) = 1$



Horizontal Shift: Left 5

Vertical Shift: Down 4

Vertical Stretch: $\frac{1}{2}$

Vertical Reflection: No

Ratti, *Precalculus: A Unit Circle Approach, 4e*
Chapter 1 Tests

Answers

Form C

1) A) $(-9, 2)$; B) $(-8, -2)$; C) $(0, -6)$; D) $(8, -5)$

2) a) $(-2, \infty)$; b) $(-\infty, 3]$

3) Distance: $2\sqrt{53}$; Midpoint: $(6, -2)$

4) $(x+2)^2 + (y-9)^2 = 9$

5) $y = -3x + 1$

6) $(16, 0), (0, -2)$

7) $(x-3)^2 + (y+5)^2 = 25$

8) $y = -\frac{5}{6}x - \frac{2}{3}$

9) $(-\infty, -6] \cup [4, \infty)$

10) $f^{-1}(x) = \frac{x+5}{8}$

11) $y = \frac{5}{3}x + \frac{59}{3}$

12) a) $(2, 6)$; b) $(-\infty, -4) \cup (6, 8)$; c) $(-4, 2)$

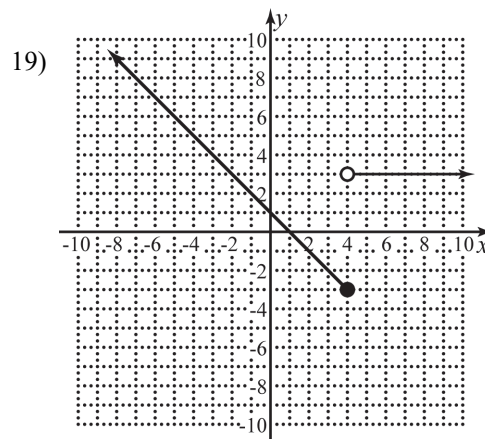
13) x -axis

15) $C(x) = 14x + 60$; 27 mugs

16) $(f \circ g)(x) = 23 - 3x$; $(-\infty, 7]$

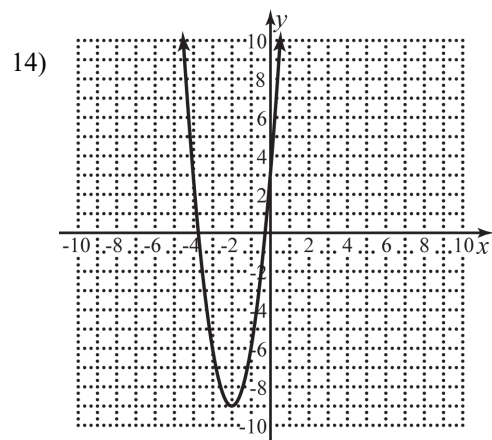
17) $f(x) = -2|x - 5| - 1$

18) -10



$f(-4) = 5, f(4) = -3, f(8) = 3$

TBEXAM.COM



Horizontal Shift: Left 2

Vertical Shift: Down 9

Vertical Stretch: 3

Vertical Reflection: No

Ratti, *Precalculus: A Unit Circle Approach, 4e*
Chapter 1 Tests

Answers

Form D

1) A) $(-7, 6)$; B) $(-4, -7)$; C) $(0, -8)$; D) $(5, -1)$

2) a) $(-\infty, -2)$; b) $[-4, \infty)$

3) Distance: $10\sqrt{2}$; Midpoint: $(-1, -4)$

4) $(x+7)^2 + (y-8)^2 = 121$

5) $y = 4x + 11$

6) $(-3, 0), (0, 27)$

7) $(x-7)^2 + (y+4)^2 = 9$

8) $y = \frac{4}{5}x - \frac{6}{5}$

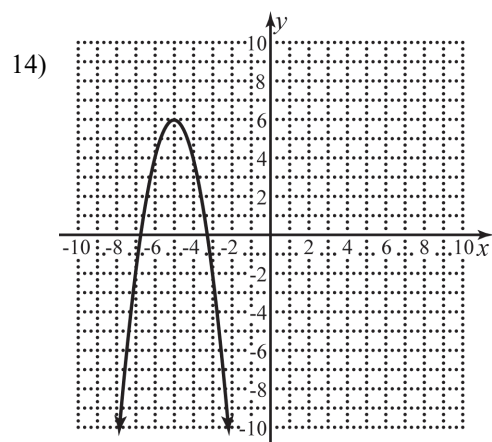
9) $(-\infty, -2] \cup [5, \infty)$

10) $f^{-1}(x) = \frac{11-x}{5}$

11) $y = \frac{3}{4}x + 11$

12) a) $(-6, -2) \cup (6, \infty)$; b) $(4, 6)$; c) $(-2, 4)$

13) origin



Horizontal Shift: Left 5

Vertical Shift: Up 6

Vertical Stretch: 2

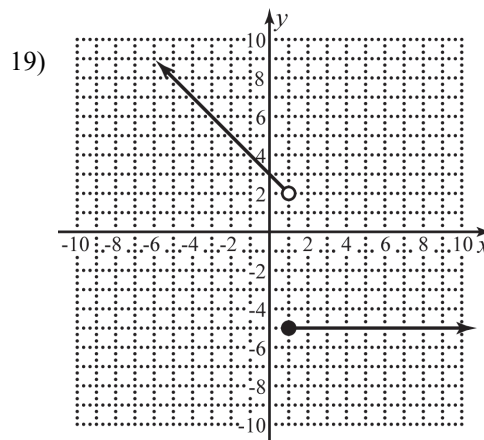
Vertical Reflection: Yes

15) $C(x) = 12x + 45$; 37 mugs

16) $(f \circ g)(x) = \frac{x-2}{x+1}$; $[2, \infty)$

17) $f(x) = -\frac{1}{2}|x-4| - 3$

18) 2



$f(-1) = 4, f(1) = -5, f(5) = -5$

TBEXAM.COM

Ratti, *Precalculus: A Unit Circle Approach, 4e*
Chapter 1 Tests

Answers

Form E

- | | |
|-------|-------|
| 1) A | 15) A |
| 2) B | 16) B |
| 3) B | 17) C |
| 4) D | 18) D |
| 5) D | 19) B |
| 6) B | 20) B |
| 7) B | 21) C |
| 8) A | 22) C |
| 9) D | 23) D |
| 10) C | 24) C |
| 11) C | 25) D |
| 12) C | 26) B |
| 13) C | 27) A |
| 14) D | |

Form F

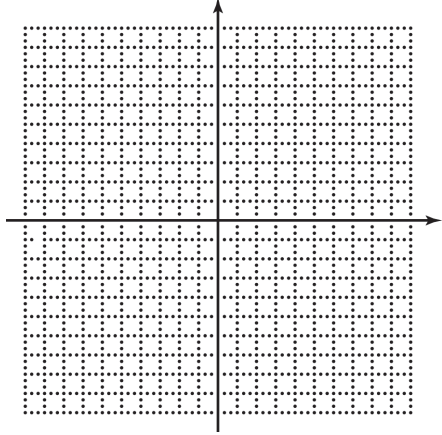
- | | |
|-------|-------|
| 1) A | 15) B |
| 2) A | 16) C |
| 3) A | 17) A |
| 4) C | 18) A |
| 5) A | 19) C |
| 6) A | 20) A |
| 7) D | 21) D |
| 8) D | 22) D |
| 9) B | 23) B |
| 10) B | 24) D |
| 11) B | 25) B |
| 12) D | 26) B |
| 13) A | 27) A |
| 14) A | |

Chapter 2 Test Form A

Name _____

Ratti, *Precalculus: A Unit Circle Approach*, 4e

- 1) For $x^5 - 3x^4 - 5x^3 + 15x^2 + 4x - 12$, use Descartes' rule of signs to determine the possible number of positive and negative rational roots. 1) _____
- 2) y varies directly with x^2 , and $y = \frac{8}{5}$ when $x = 2$. Find the value of k , write the equation that represents this variation, and find the value of y when $x = 3$. 2) _____
- 3) For $f(x) = 7x^3(2x-5)(x^2+16)^4(x+5)^6$, determine: a) the real roots, b) their multiplicity, and c) whether the graph crosses or touches the x -axis at each root. 3) _____
- 4) Sketch the graph of $f(x) = x^3 - 2x^2 - 11x + 12$. State the x - and y -intercepts.



 4) _____
- 5) List all the possible rational roots of $2x^3 - 3x^2 - 29x + 60$ and factor the polynomial. 5) _____
- 6) Determine the end behavior for $f(x) = -x^2(x-1)^3(x+3)^5$. 6) _____
- 7) Find the equation in standard form of the parabolic function that passes through $(1, 27)$ with vertex at $(-3, -5)$. 7) _____
- 8) Find the equation of the oblique asymptote for $f(x) = \frac{2x^3 - 9x^2 - 10x + 29}{x^2 - 3x - 10}$. 8) _____
- 9) Use the given roots to factor $2x^5 + 9x^4 + 9x^3 + 3x^2 + 7x - 6$.
 $x = i, -2$ 9) _____
- 10) Given $f(x) = -4x^2 + 52x + 21$, determine: a) if function has a maximum or minimum value, b) where this value occurs, and c) what that value is. 10) _____
- 11) z varies directly with x and inversely with y , and $z = 43.75$ when $x = 25$ and $y = 0.2$. Find z when $x = 20$ and $y = 0.4$. 11) _____

Chapter 2 Test Form A

Name _____

Ratti, Precalculus: A Unit Circle Approach, 4e

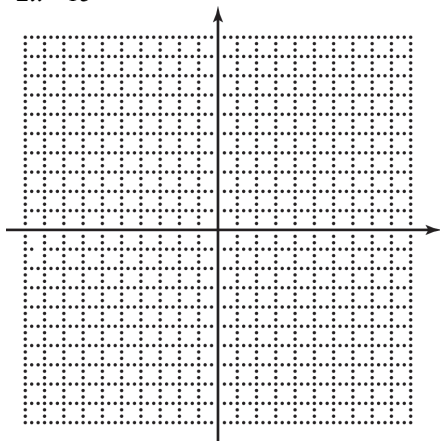
- 12) The cost, in dollars, to produce x items is given by $C = 20x + 400$. If the demand function is given by $p = 500 - 10x$, find the value of x that maximizes profit and state that maximum profit.

12) _____

- 13) The sum of two numbers is 90. Determine if the numbers have a maximum or minimum product and find that product.

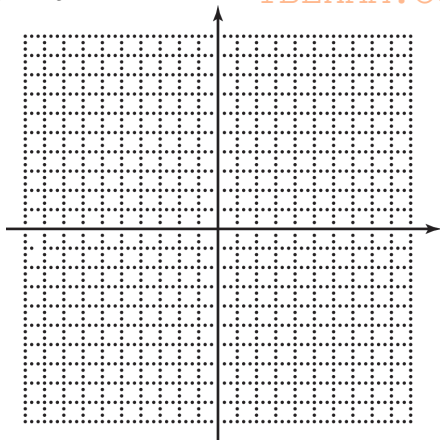
13) _____

- 14) Graph $f(x) = \frac{x-3}{x^2-2x-15}$. List all intercepts and asymptotes.



14) _____

- 15) Graph $f(x) = \frac{2x^2+5x-3}{x^2-25}$. List all intercepts and asymptotes.



15) _____