

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

State whether the following represents a function.

1) Set A: students attending Laughlin Community College 1) _____

Set B: social security number of the student

A) Yes

B) No

2) $y = x^3 - 2x + 4$

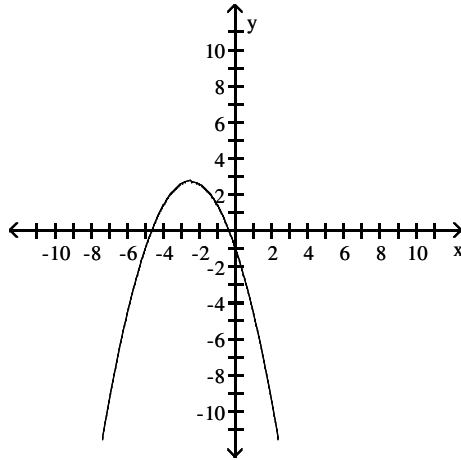
2) _____

A) Yes

B) No

State whether the graph represents a function.

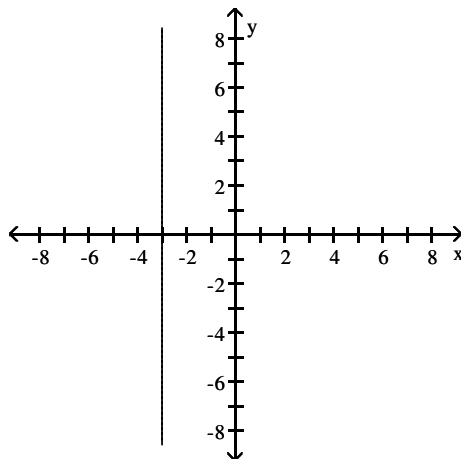
3) 3) _____



A) Yes

B) No

4) 4) _____



A) Yes

B) No

Evaluate the function at the indicated value.

5) $f(x) = -7x^2 + 6x + 9$; $f(3)$

A) -36

B) -40

C) 6

D) -46

5) _____

6) $f(x) = x^2 - 4x + 6$; $f(a + h)$

A) $a^2 + 2ah + h^2 - 4a - 4h + 6$

B) $a^2 + h^2 - 4a + h + 6$

C) $a^2 + h^2 - 4a - 4h + 6$

D) $a^2 + 2ah + h^2 - 4a + 6$

6) _____

Simplify the difference quotient for the given function.

7) $f(x) = -3x + 6 + x^2$

A) $-3 + a^2 + 2a + h$

B) $-3 + 2a + h$

C) $-3a + 2ah + h$

D) $-3a + h + 6$

7) _____

8) $f(x) = 8x^3$

A) $24a^2 + 24ah + 8h$

B) $24a^2 + 24ah + 8h^2$

C) $24a^2$

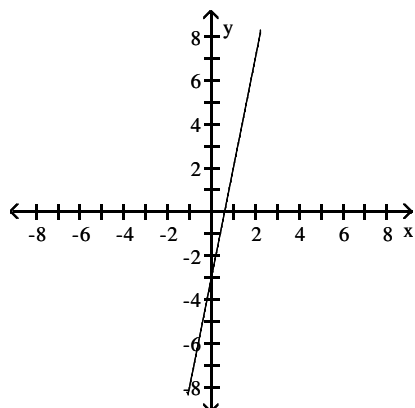
D) $24a^2 + h$

8) _____

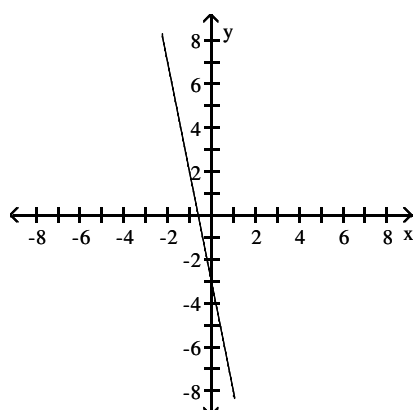
Choose the graph that matches the equation.

9) $y = 5x - 3$

A)

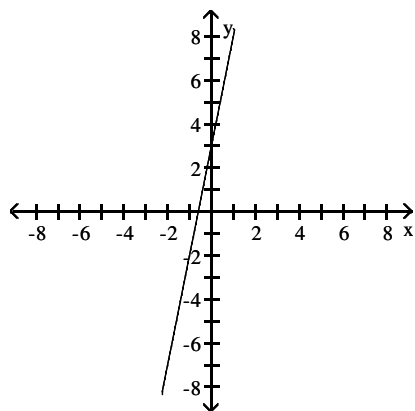


B)

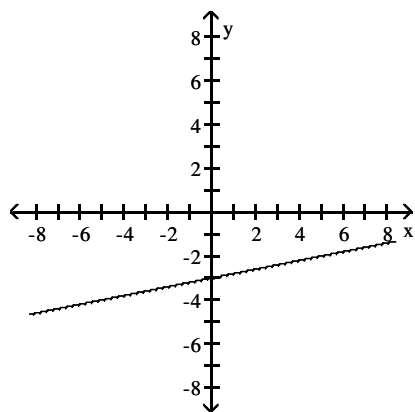


9) _____

C)

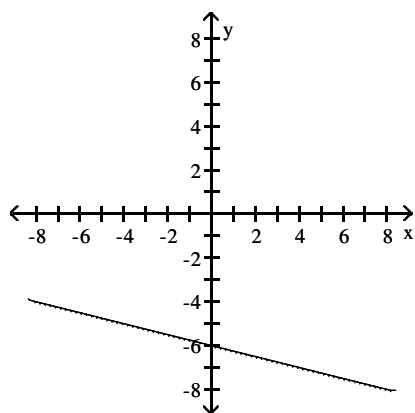


D)



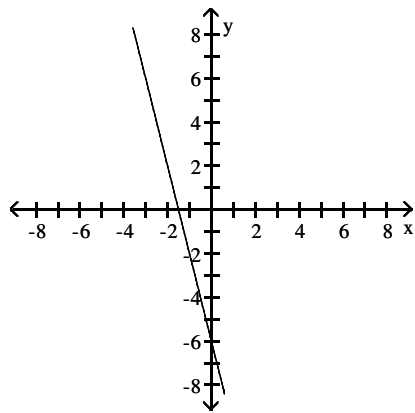
10) $y = -4x - 6$

A)

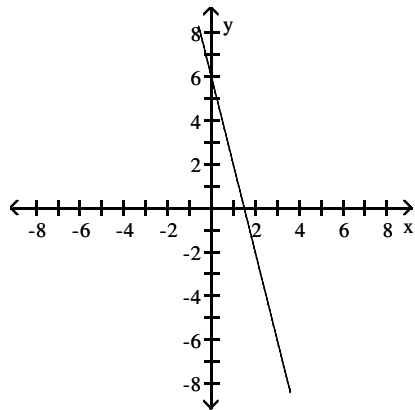


10) _____

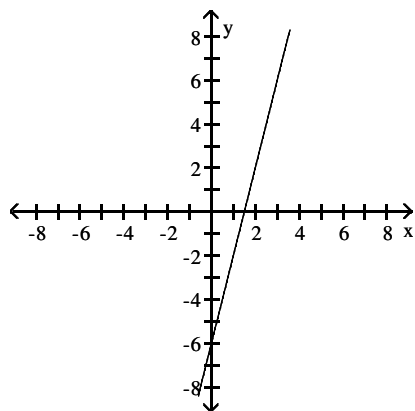
B)



C)



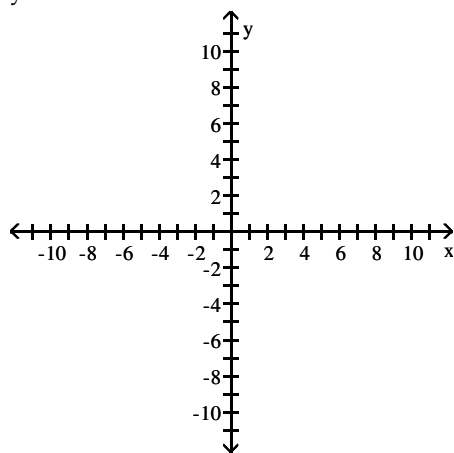
D)



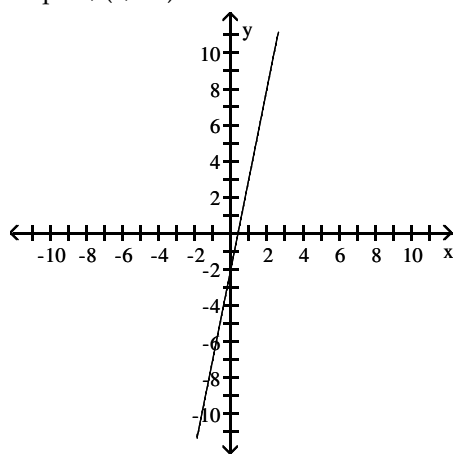
Determine the slope and y-intercept of the linear function. Draw the graph.

11) $y = 5 - 2x$

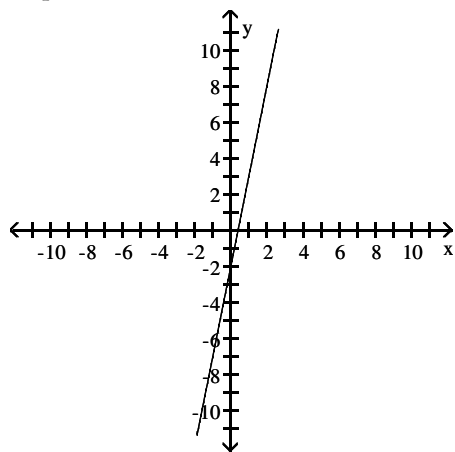
11) _____



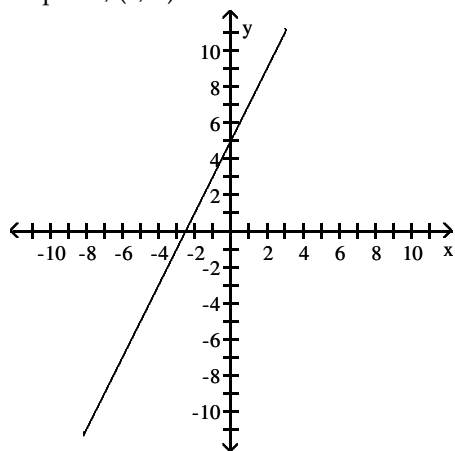
A) slope 5; (0, -2)



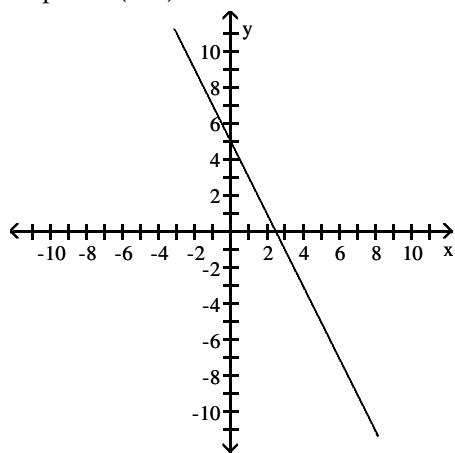
B) slope 2; (0, -5)



C) slope -2; (0, 5)



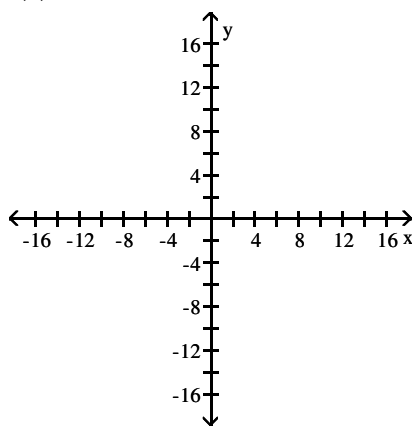
D) slope -2; (0, 5)



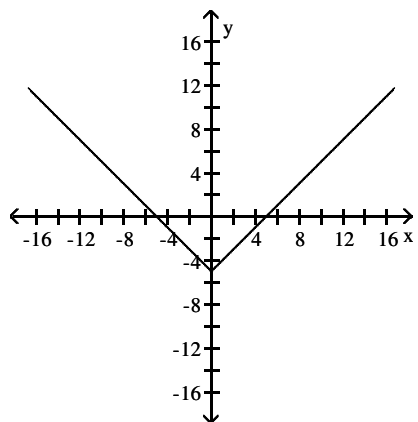
Graph the function.

12) $f(x) = |x| - 5$

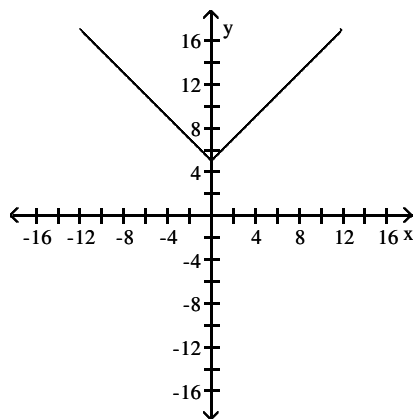
12) _____



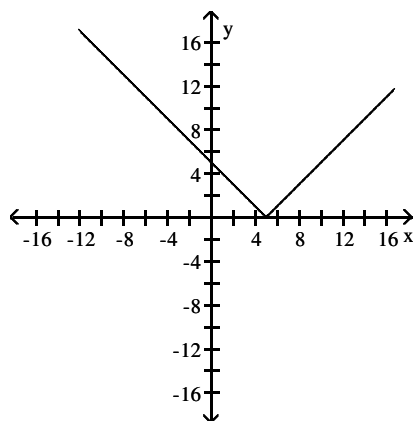
A)



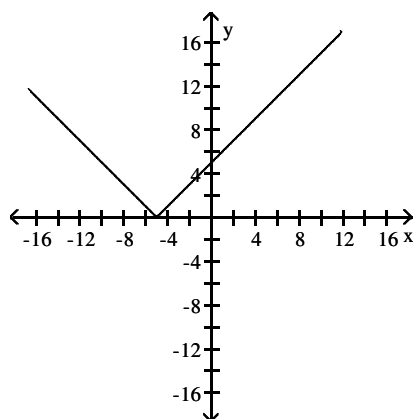
B)



C)

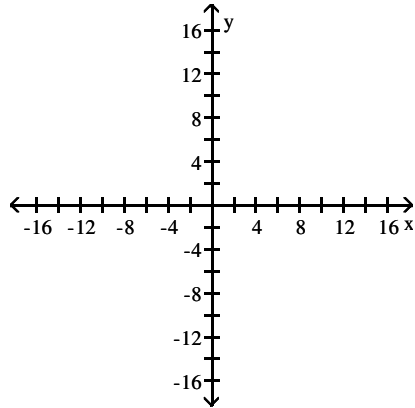


D)

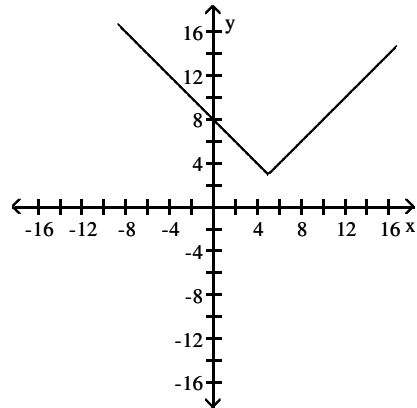


13) $f(x) = 3 - |x - 5|$

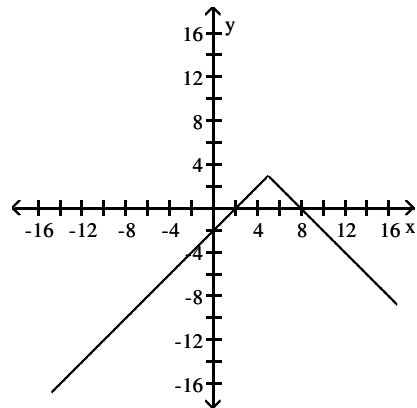
13) _____



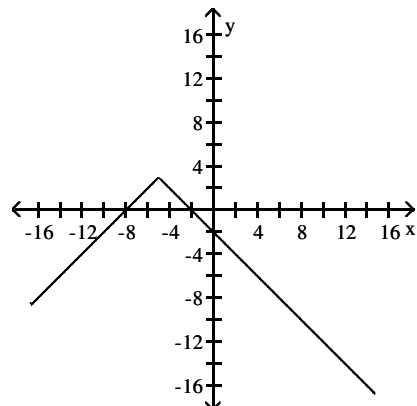
A)



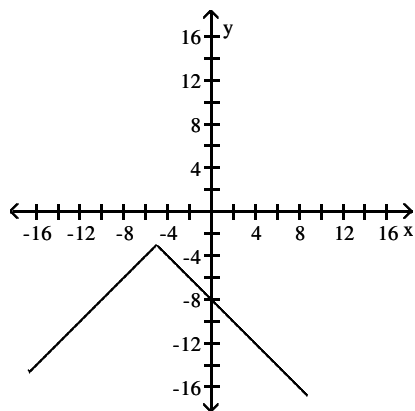
B)



C)

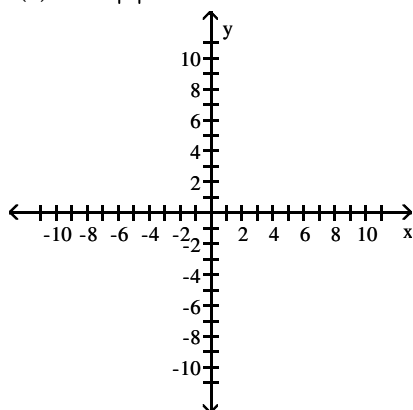


D)

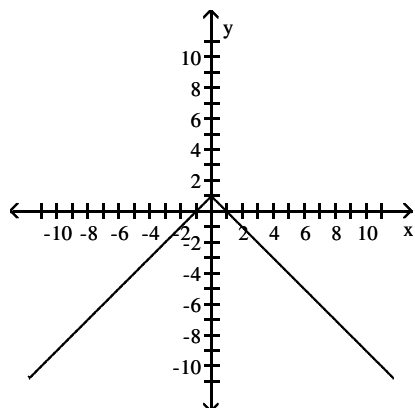


14) $f(x) = 1 - |x|$

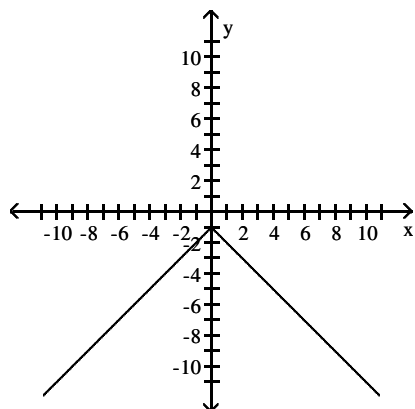
14) _____



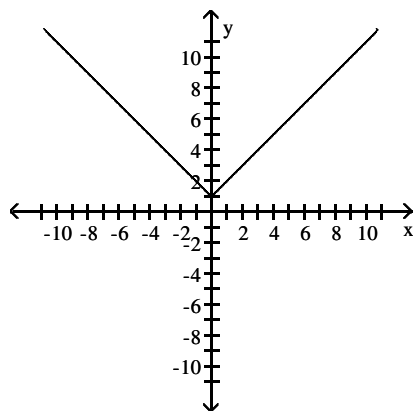
A)



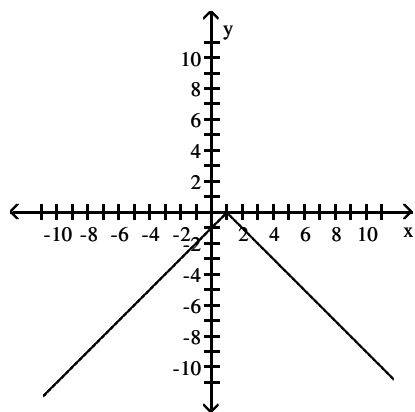
B)



C)



D)



Find the domain and range of the function.

15) $f(x) = |x + 4| + 2$

A) domain: reals; range: $y \geq 2$

C) domain: reals; range: reals

B) domain: reals; range: $y \leq 2$

D) domain: $x \geq 4$; range: $y \geq 2$

15) _____

16) $f(x) = 2 - |x|$

A) domain: $x \leq 2$; range: reals

C) domain: reals; range: $y \leq 2$

B) domain: reals; range: reals

D) domain: reals; range: $y \geq 2$

16) _____

Solve the problem.

17) A moving firm charges a flat fee of \$35 plus \$30 per hour. Write a function describing the total cost in dollars of using the moving firm for x hours.

A) $C(x) = 30x - 35$

B) $C(x) = 30x + 35$

C) $C(x) = 35x + 30$

D) $C(x) = 35x - 30$

17) _____

18) The cost C , in dollars, to produce graphing calculators is given by the function $C(x) = 52x + 3000$, where x is the number of calculators produced. What is the cost to produce 2800 calculators?

A) \$145,600

B) \$142,600

C) \$148,600

D) \$148,950

18) _____

- 19) A construction company uses the function $S(t) = 30,000 - 2000t$ to determine the salvage value $S(t)$ of their trucks t years after it is purchased. What was the initial value of the truck and how long until it depreciates completely? 19) _____
- A) \$20,000; 15 years B) \$32,000; 16 years
C) \$30,000; 15 years D) \$30,000; 30 years
- 20) Midtown Delivery Service delivers packages which cost \$1.90 per package to deliver. The fixed cost to run the delivery truck is \$60 per day. If the company charges \$6.90 per package, how many packages must be delivered daily to break even? 20) _____
- A) 6 packages B) 31 packages
C) 8 packages D) 12 packages

Answer Key

Testname: UNIT 0 TOPIC 1 QUIZ

- 1) A
- 2) A
- 3) A
- 4) B
- 5) A
- 6) A
- 7) B
- 8) B
- 9) A
- 10) B
- 11) D
- 12) A
- 13) B
- 14) A
- 15) A
- 16) C
- 17) B
- 18) C
- 19) C
- 20) D

UNIT 0 TOPIC 2 QUIZ

Name _____

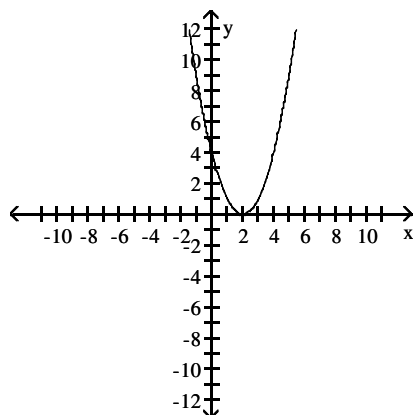
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Choose the graph that matches the equation.

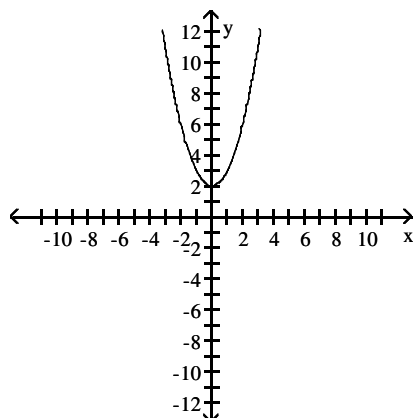
1) $y = (x + 2)^2$

1) _____

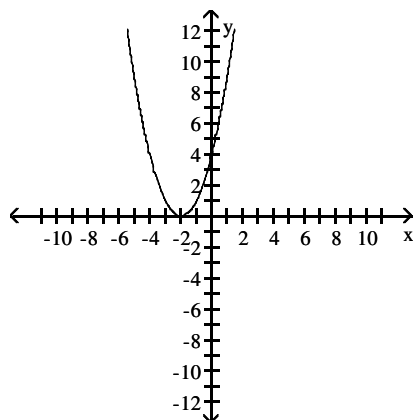
A)



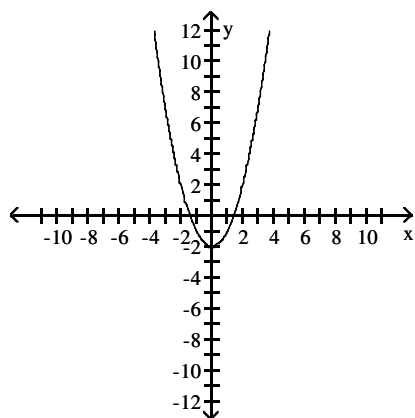
B)



C)



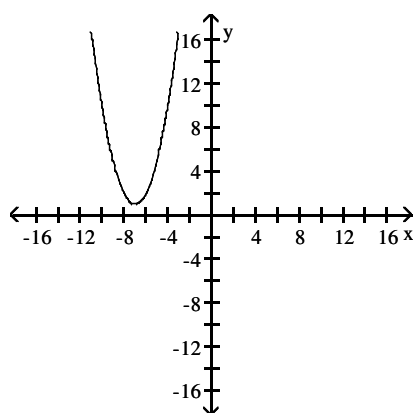
D)



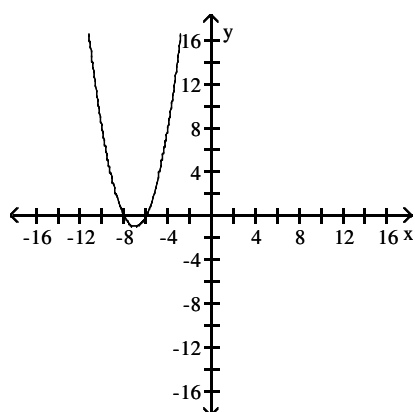
2) $y = (x - 7)^2 + 1$

2) _____

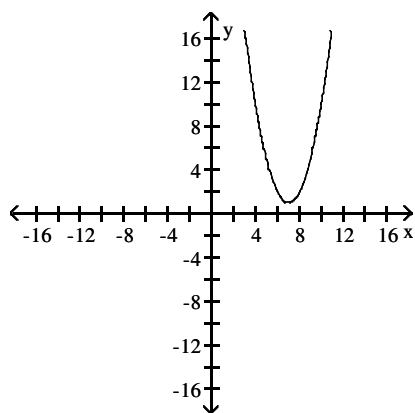
A)



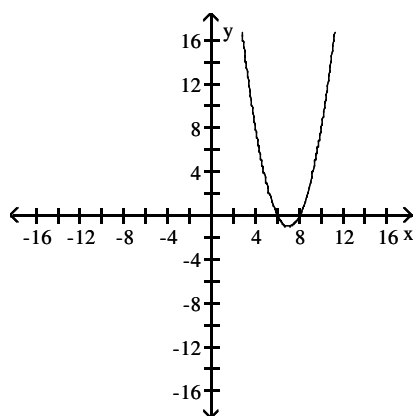
B)



C)



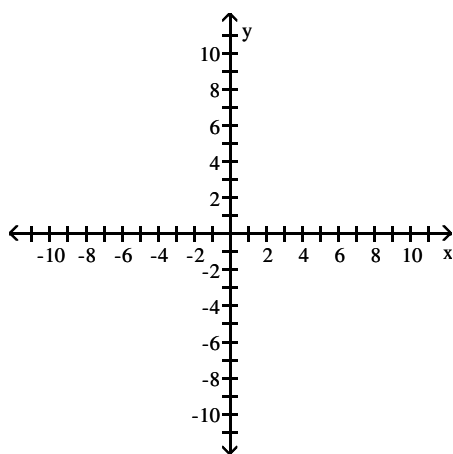
D)



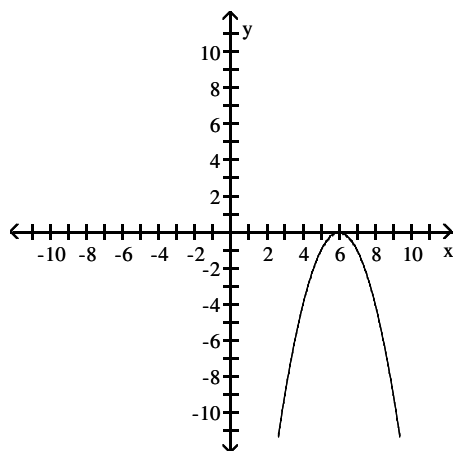
Determine the vertex of the quadratic function. Graph the function and state the domain and range.

3) $y = (x + 6)^2$

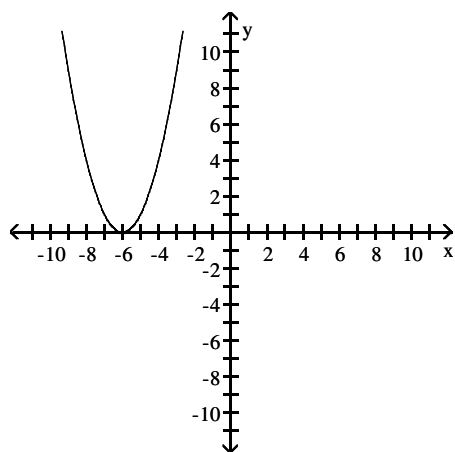
3) _____



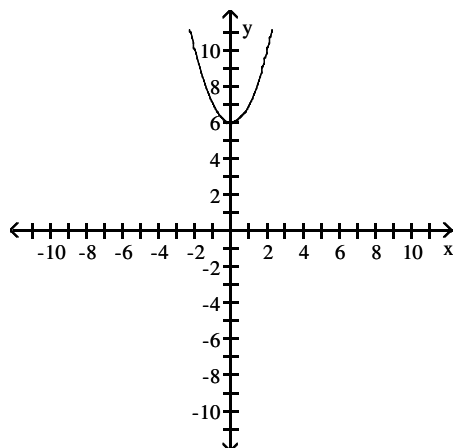
- A) vertex: $(6, 0)$
 domain: reals
 range: $y \leq 0$



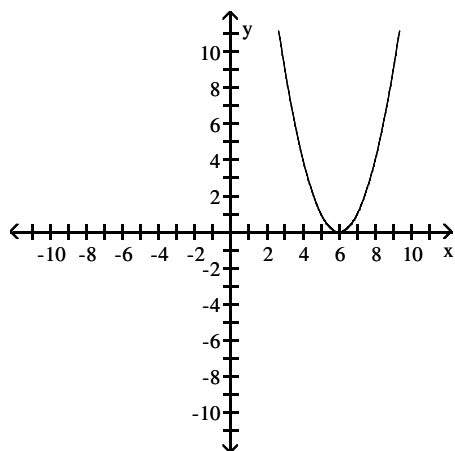
- B) vertex: $(-6, 0)$
 domain: reals
 range: $y \geq 0$



- C) vertex: $(0, 6)$
 domain: reals
 range: $y \geq 6$

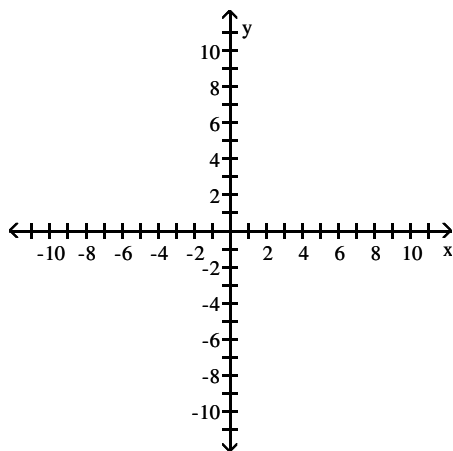


D) vertex: (6, 0)
 domain: reals
 range: $y \geq 0$

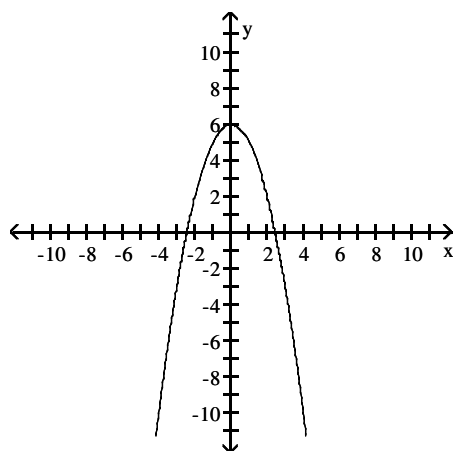


4) $y = x^2 + 6$

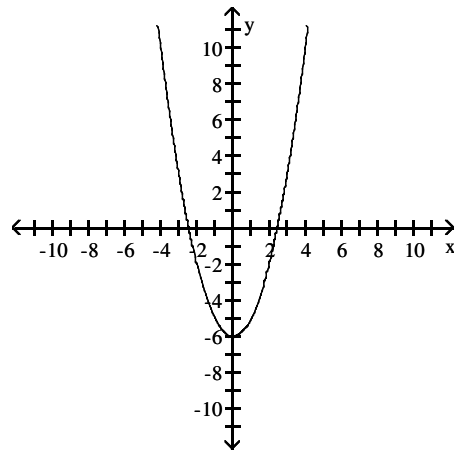
4) _____



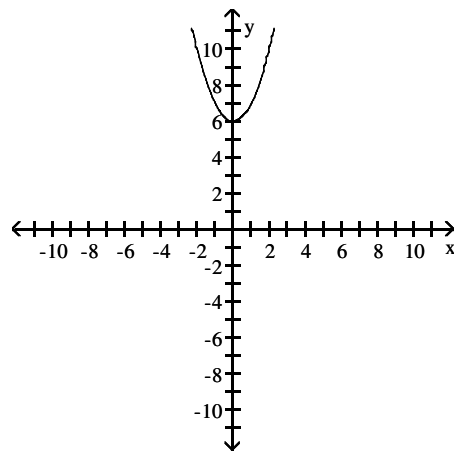
A) vertex: (0, 6)
 domain: reals
 range: $y \leq 6$



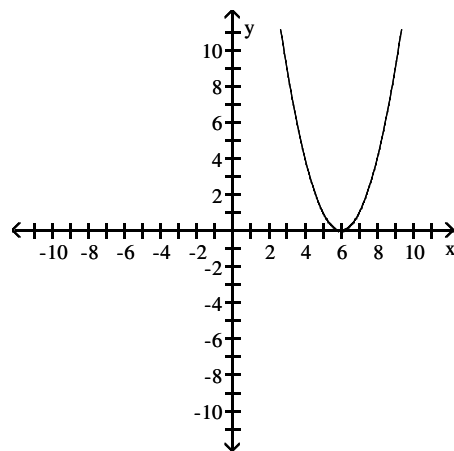
- B) vertex: $(0, -6)$
 domain: reals
 range: $y \geq -6$



- C) vertex: $(0, 6)$
 domain: reals
 range: $y \geq 6$

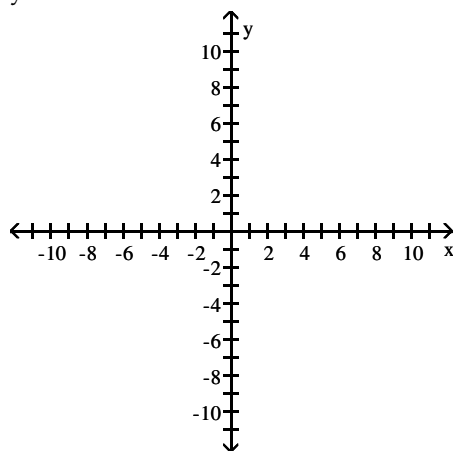


- D) vertex: $(6, 0)$
 domain: reals
 range: $y \geq 0$

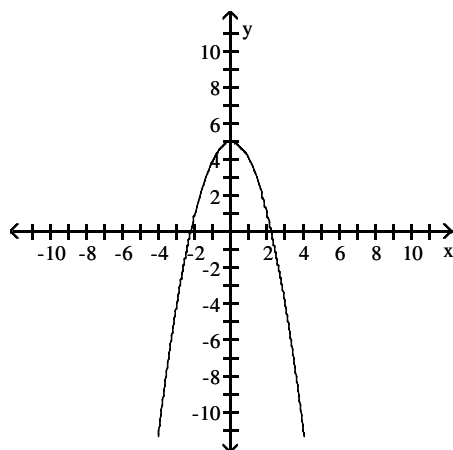


5) $y = -5 - x^2$

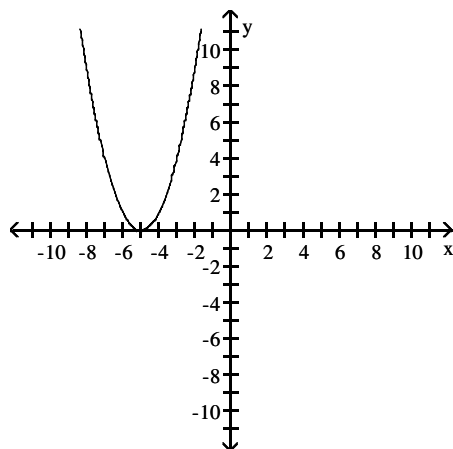
5) _____



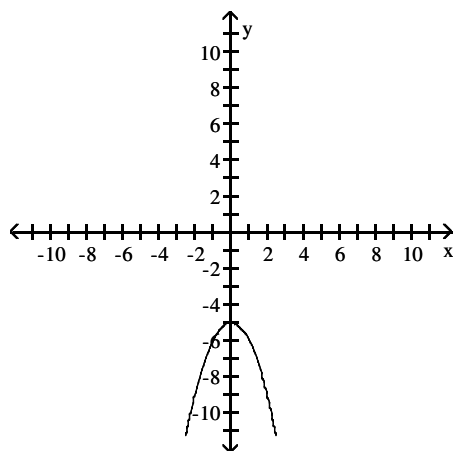
A) vertex: (0, 5)
domain: reals
range: $y \leq 5$



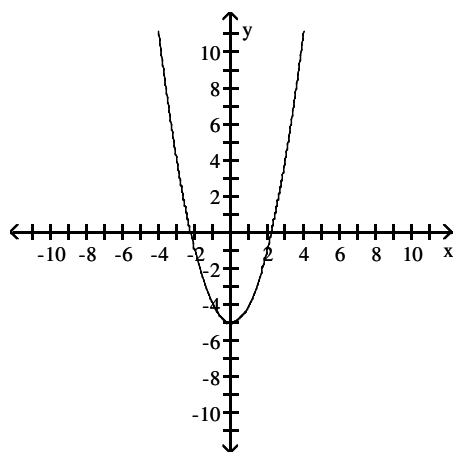
B) vertex (-5, 0)
domain: reals
range: $y \geq 0$



C) vertex: (0, -5)
 domain: reals
 range: $y \leq -5$



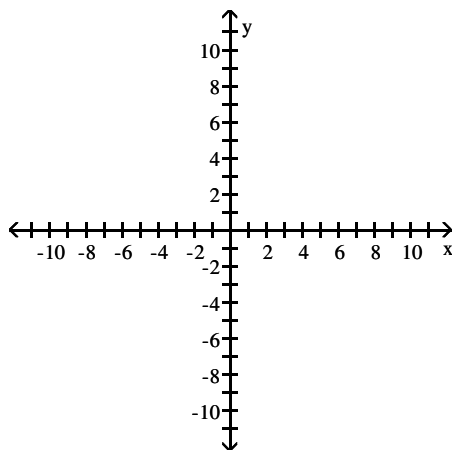
D) vertex: (0, -5)
 domain: reals
 range: $y \geq -5$



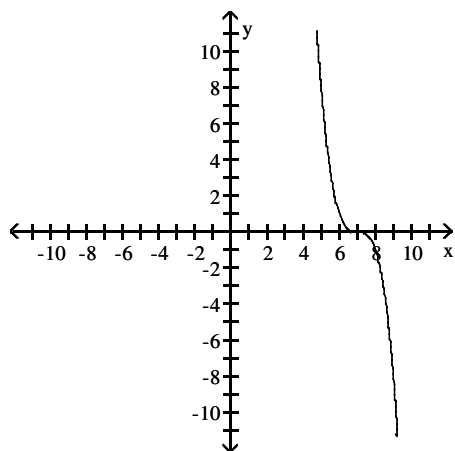
Determine the point of inflection of the cubic function and graph the function.

6) $y = (x + 7)^3$

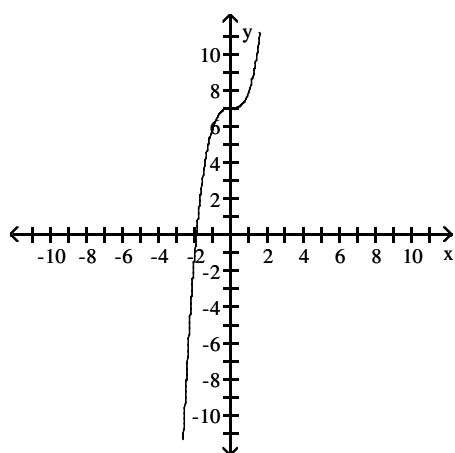
6) _____



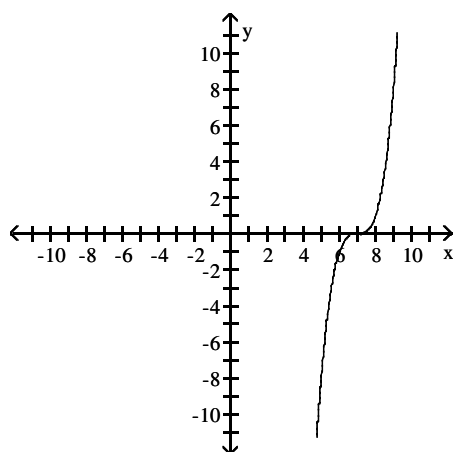
A) $(7, 0)$



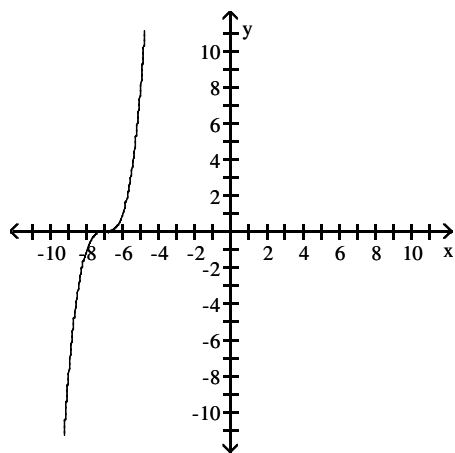
B) $(0, 7)$



C) $(7, 0)$

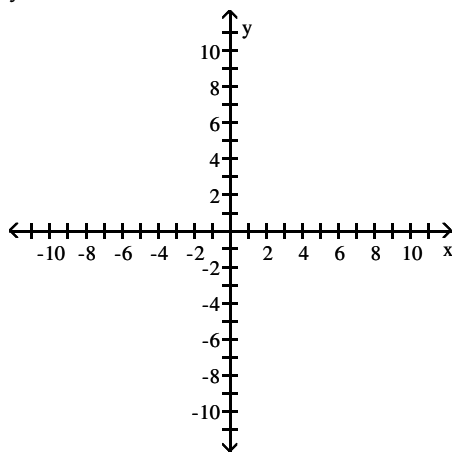


D) $(-7, 0)$

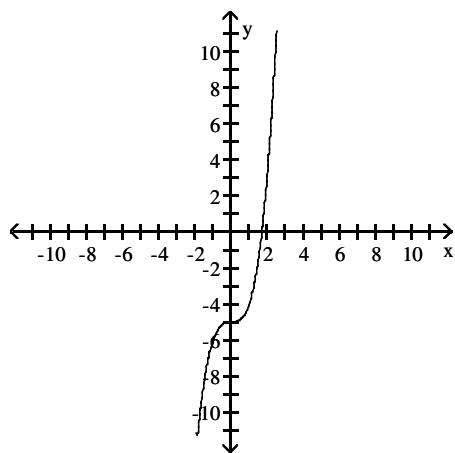


7) $y = x^3 + 5$

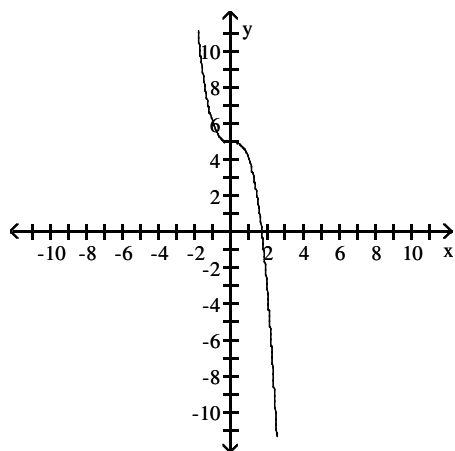
7) _____



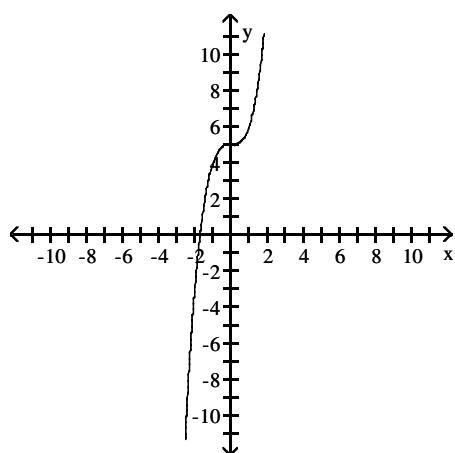
A) $(0, -5)$



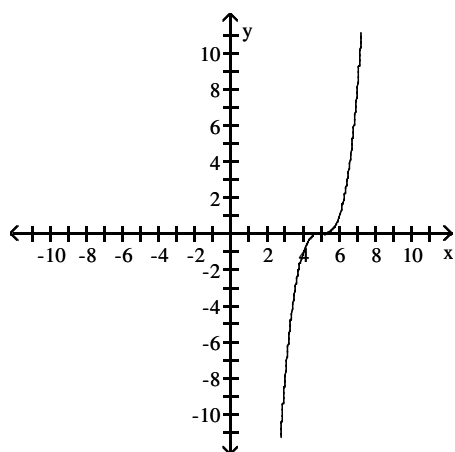
B) (0, 5)



C) (0, 5)

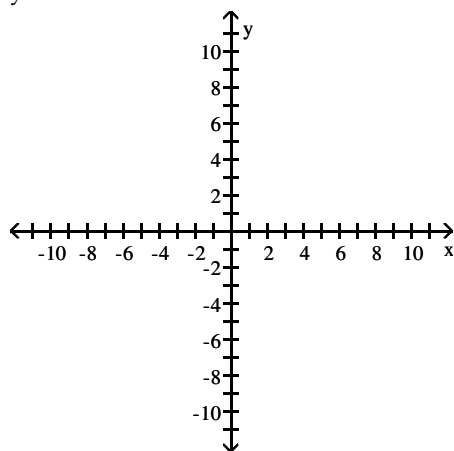


D) (5, 0)

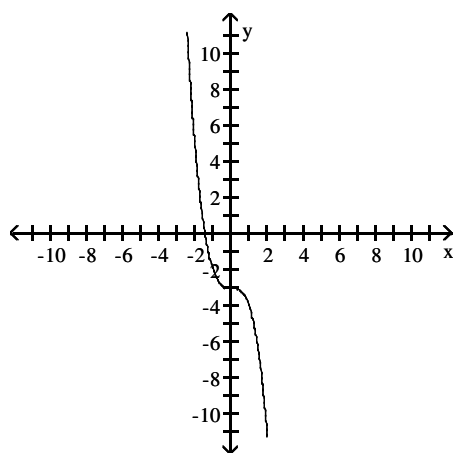


8) $y = x^3 - 3$

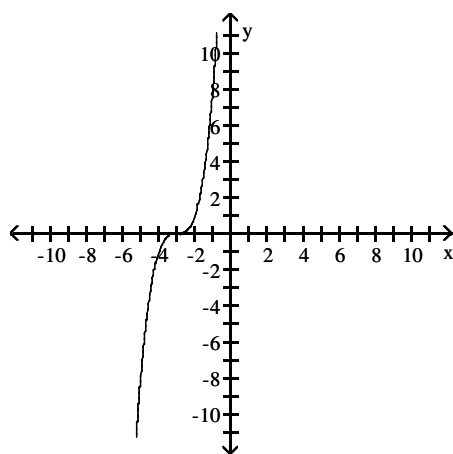
8) _____



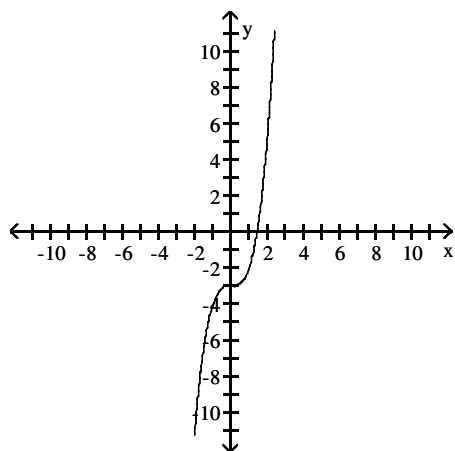
A) $(0, -3)$



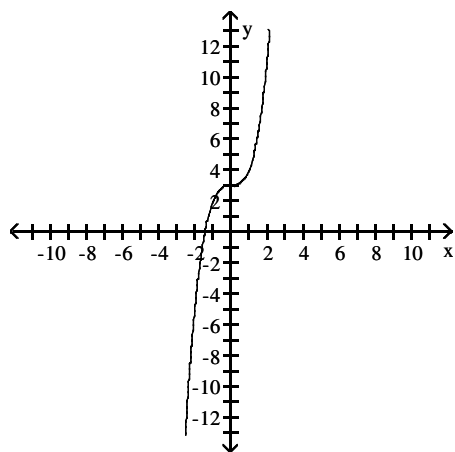
B) $(-3, 0)$



C) $(0, -3)$

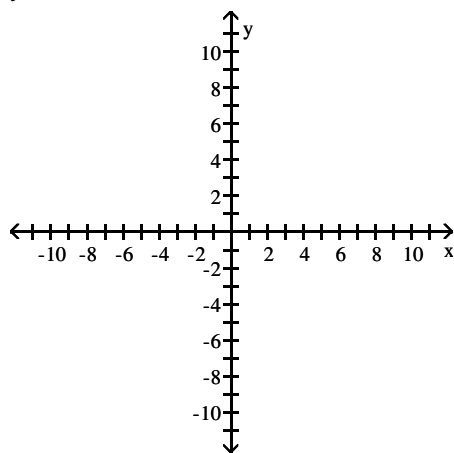


D) $(0, 3)$

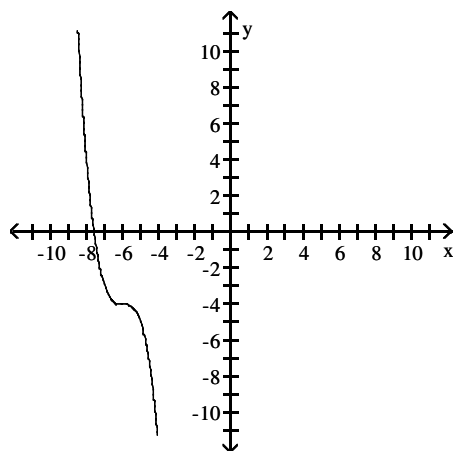


9) $y = (x - 6)^3 - 4$

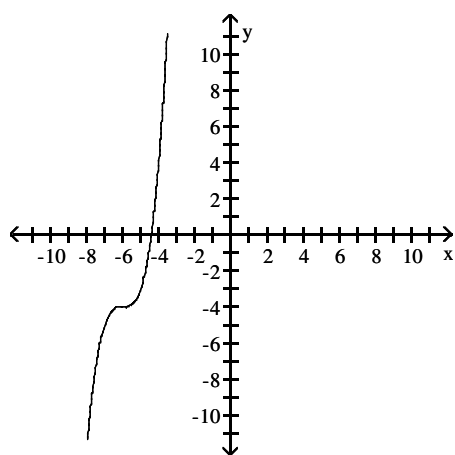
9) _____



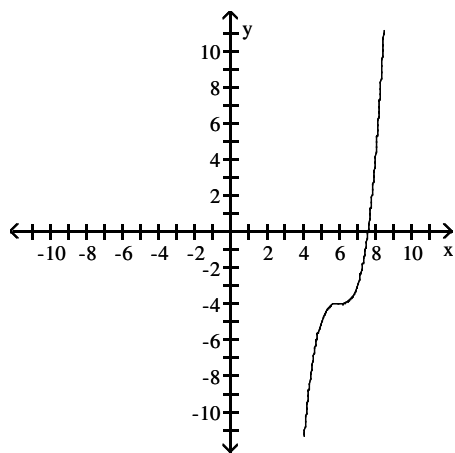
A) $(-6, -4)$



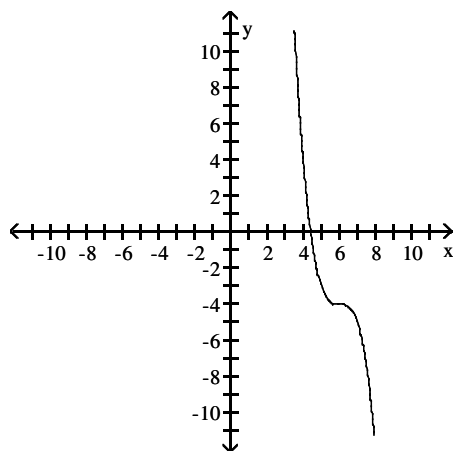
B) $(-6, -4)$



C) $(6, -4)$



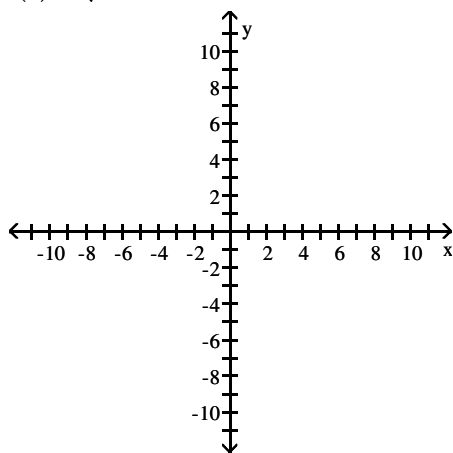
D) (6, -4)



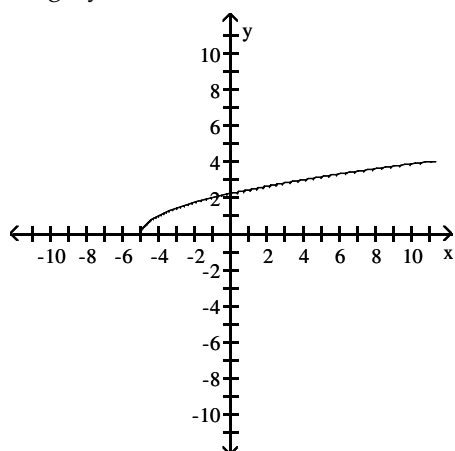
Draw the graph of the square-root function. State the domain and range.

10) $f(x) = \sqrt{x - 5}$

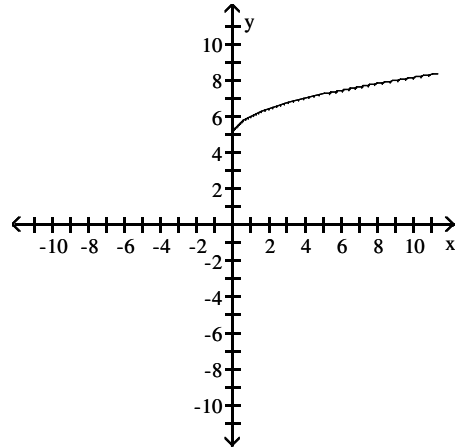
10) _____



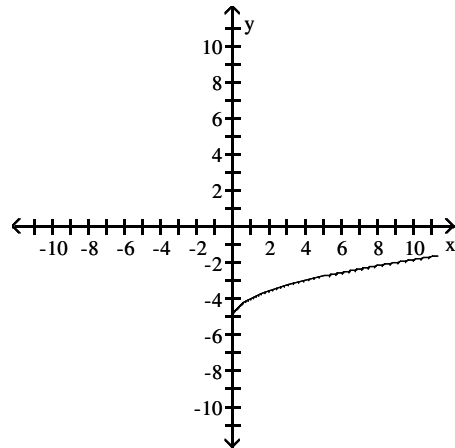
A) domain: $x \geq -5$
range: $y \geq 0$



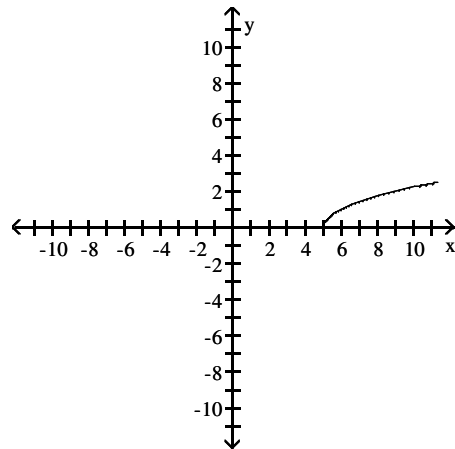
B) domain: $x \geq 0$
range: $y \geq 5$



C) domain: $x \geq 0$
range: $y \geq -5$

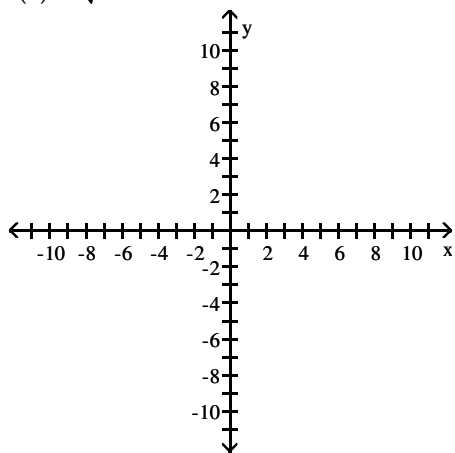


D) domain: $x \geq 5$
range: $y \geq 0$

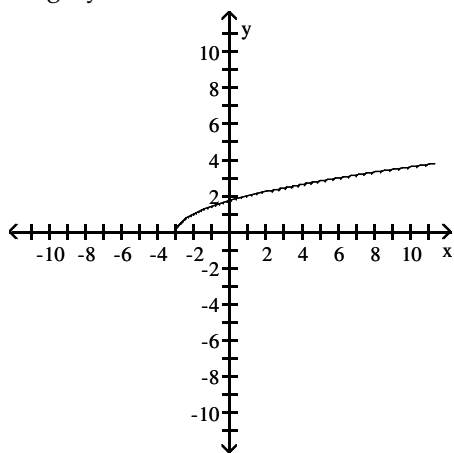


11) $f(x) = \sqrt{x} - 3$

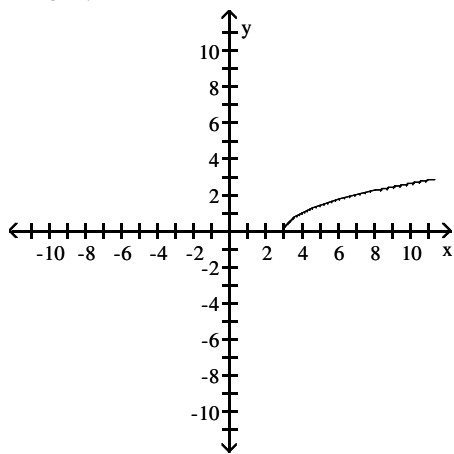
11) _____



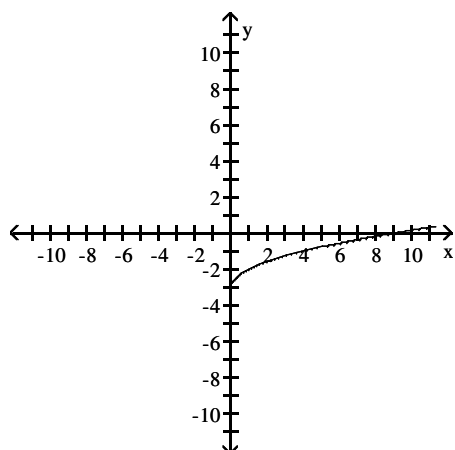
A) domain: $x \geq -3$
range: $y \geq 0$



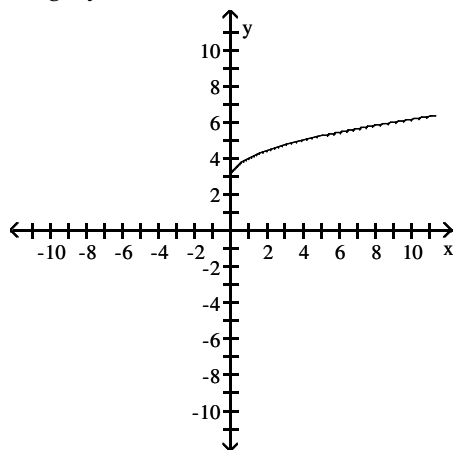
B) domain: $x \geq 3$
range: $y \geq 0$



C) domain: $x \geq 0$
range: $y \geq -3$

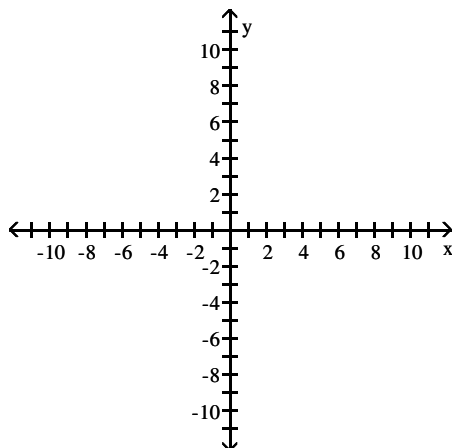


D) domain: $x \geq 0$
range: $y \geq 3$

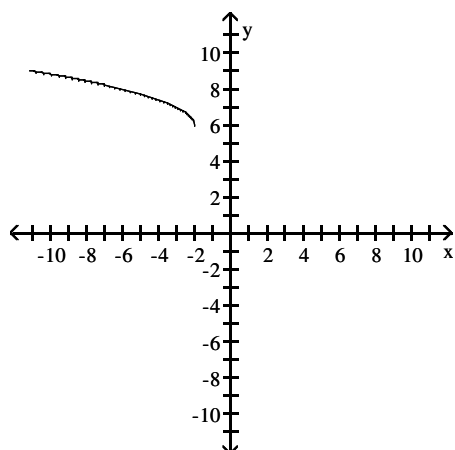


12) $y = 6 + \sqrt{2 - x}$

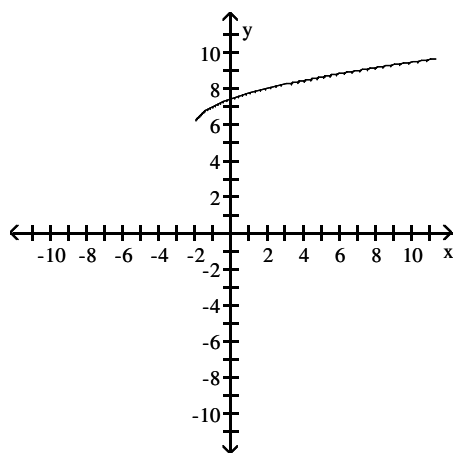
12) _____



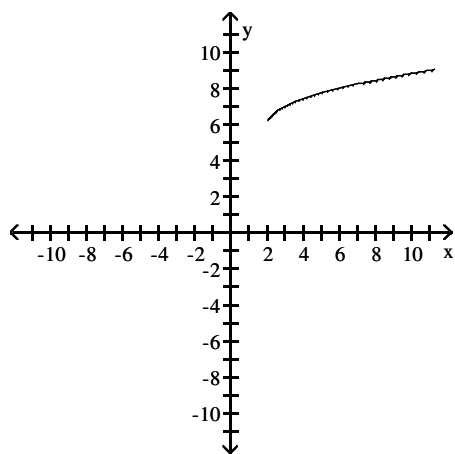
A) domain: $x \leq -2$
range: $y \geq 6$



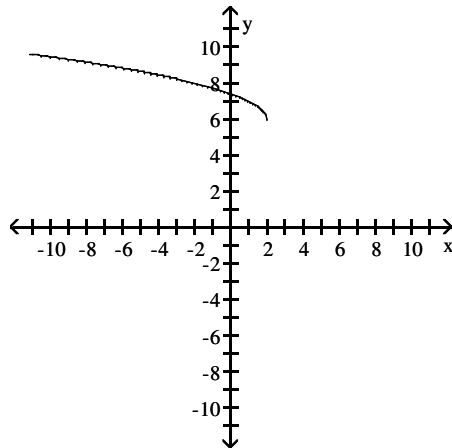
B) domain: $x \geq -2$
range: $y \geq 6$



C) domain: $x \geq 2$
range: $y \geq 6$



- D) domain: $x \leq 2$
range: $y \geq 6$



Solve the problem.

- 13) Market supply and market demand, in hundreds of thousands, for a certain book are given by $S(x) = x - 5$ and $D(x) = \sqrt{2x + 5}$, where x is the cost of the book. Find the equilibrium point and interpret its meaning. 13) _____
 A) Supply equals demand if the cost of the book is \$10.
 B) Supply equals demand if the cost of the book is \$5.
 C) The company will break even if the cost of the book is \$5.
 D) The company will break even if the cost of the book is \$2 or \$10.
- 14) The time T in seconds for a pendulum of length L feet to make one swing is given by $T = 2\pi\sqrt{\frac{L}{37}}$. Find the time for a pendulum of length 2.4 ft to make one swing. Use 3.14 for π and round to the nearest tenth of a second. 14) _____
 A) 1.6 sec B) 2.2 sec C) 2.4 sec D) 1.0 sec
- 15) The height, in feet, of an object t seconds after being thrown upward from a hot air balloon is given by:
 $h(t) = -16.1t^2 + 6.3t + 800$,
 Predict the height of the object after 5.5 seconds. 15) _____
 A) 278.32 ft B) 347.63 ft C) 746.10 ft D) 0 ft
- 16) A company uses the quadratic model $y = -11x^2 + 350x$ to estimate the number of units (y) of a new product that will be sold x weeks after its release. How many units of the product can they expect to sell 8 weeks after release? 16) _____
 A) 3504 units B) 2888 units C) 2712 units D) 2096 units
- 17) John owns a hotdog stand. He has found that his profit can be modeled by $P(x) = -x^2 + 56x + 75$, where x is the number of hotdogs sold. How many hotdogs must he sell to maximize his profit? 17) _____
 A) 56 hotdogs B) 28 hotdogs
 C) 47 hotdogs D) 75 hotdogs

- 18) In one U.S. city, the quadratic function $A(x) = 0.0041x^2 - 0.48x + 36.42$ models the median age, A , at which men were first married x years after 1900. Find the vertex of the equation and interpret its meaning. 18) _____

- A) (59, 20.9); The median age at which men were first married reached a minimum of 20.9 years in 1959.
B) (59, 22.4); The median age at which men were first married reached a minimum of 22.4 years in 1959.
C) (71, 27.1); The median age at which men were first married reached a maximum of 27.1 years in 1971.
D) (59, 22.4); The median age at which men were first married reached a maximum of 22.4 years in 1959.

- 19) April shoots an arrow upward into the air at a speed of 32 feet per second from a platform that is 30 feet high. The height of the arrow after t seconds is given by the function $h(t) = -16t^2 + 32t + 30$. What is the maximum height of the arrow? 19) _____

- A) 29 ft B) 16 ft C) 30 ft D) 46 ft

A function $f(x)$ is given. By using your graphing calculator to estimate the x -intercepts of the graph of the function, estimate the real solutions to the equation $f(x) = 0$. Round solutions to three decimal places if necessary.

- 20) $f(x) = x^4 - 13x^2 - 48$ 20) _____
A) $x = -16, 3$ B) $x = 4$
C) $x = -\sqrt{3}, \sqrt{3}$ D) $x = -4, 4$

Answer Key

Testname: UNIT 0 TOPIC 2 QUIZ

- 1) C
- 2) C
- 3) B
- 4) C
- 5) C
- 6) D
- 7) C
- 8) C
- 9) C
- 10) D
- 11) C
- 12) D
- 13) A
- 14) A
- 15) B
- 16) D
- 17) B
- 18) B
- 19) D
- 20) D