Review for Midterm/Test #1 Name _____ Date _____ Period ___

1. Find the average rate of change of each function from $x_1 = 3$ to $x_2 = 8$

A. $f(x) = -\sqrt{x+1}$

B. $f(x) = x^2 + 2x - 8$

2. Find the midpoint and distance between the two given points.

A. $X(3, -5),\ Y(-1, 1)$

B. $Q(2, -3),\ R(5, -8)$

3. Find the equation of the line that passes through (2, –5) and is perpendicular to the given line.

$$-x + 4y = -22$$

Give the equation of any line that is parallel to the given line.

4. Is (–2, 11) a point on the perpendicular line in #3?

Is (4, –12)?

Find 3 points that are on the perpendicular line you found in #3.

5. Find the domain then simplify the rational function.

A. $f(x) = \dfrac{x^2 + 6x - 27}{x^2 - 81}$

B. $f(x) = \dfrac{3x^3 - 11x^2 - 4x}{2x^2 - 9x + 4}$

6. Find the domain of each function.

A. $f(x) = \dfrac{3x}{2x+5}$

B. $f(x) = \dfrac{\sqrt{2x+6}}{x-8}$

C. $f(x) = \dfrac{1}{\sqrt{x+3}}$

7. Find the difference quotient of each function.

A. $f(x) = x^2 + 2x,\quad \dfrac{f(x+h) - f(x)}{h},\quad h \neq 0$

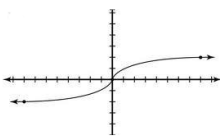
B. $f(x) = 4x - 7,\quad \dfrac{f(3+h) - f(3)}{h},\quad h \neq 0$

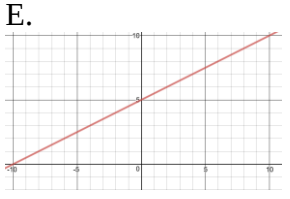
8. Determine if each function is even, odd or neither.

A. $f(x) = -3x^2 + 2x - 5$

B. $f(x) = 9x^6 + x^2$

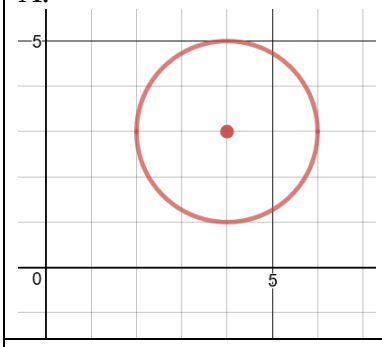
C. $f(x) = -x(x^2 - 2)$

D. 

E. 

9. Write the equation of the circle in standard form. Identify the center and radius of each circle.

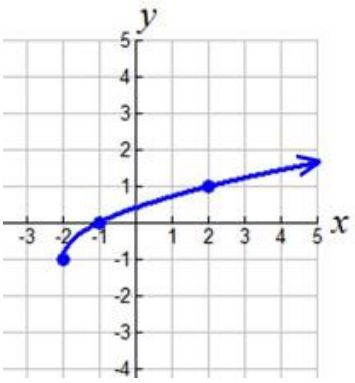
A.



B. $x^2 + y^2 - 6x + 8y - 1 = 0$

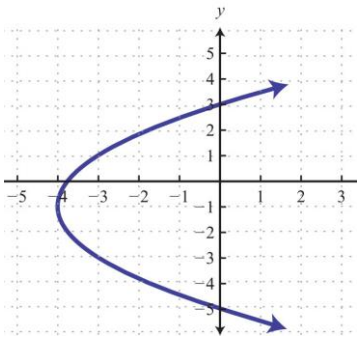
10. Find the domain and range of each graph.

A.



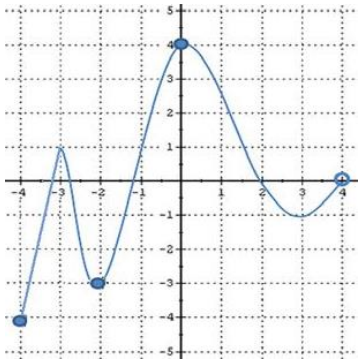
D:
R:

B.



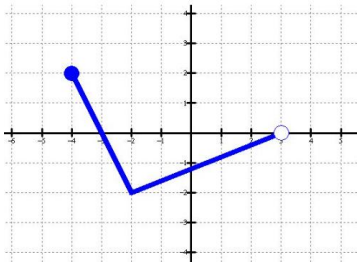
D:
R:

C.



D:
R:

D.



D:
R:

11. Factor each completely

A. $f(x) = 121x^2 - 169$

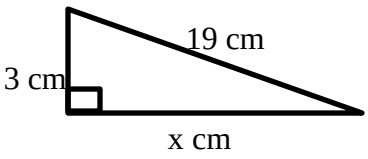
B. $f(x) = 2x^3 - x^2 - 8x + 4$

C. $f(x) = 20x^2 - 7x - 3$

D. $f(x) = 4x^2 + 4x + 1$

E. $f(x) = x^2 + 30x - 40$

12. Find the unknown side.



13. A ladder is leaning against a wall. The base of a ladder is 5 ft from the wall. The ladder reaches 28 ft up the wall. How long is the ladder?

14. Evaluate the funtion f(x) for each input.

$$f(x) = -2x^2 + 5x - 1$$

A. $f(-2)$

B. $f(3x)$

C. $f(x+3)$

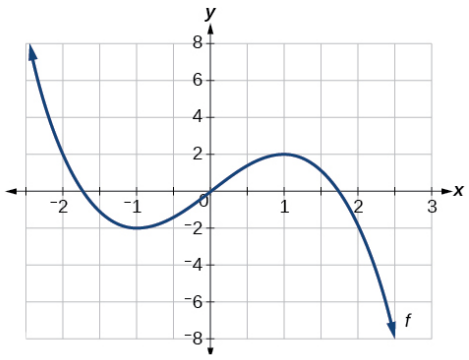
15. Evaluate the function at each specified value.

$$f(x) = \begin{cases} x^2 - 5x + 4, & x < -3 \\ 8, & -3 \le x < 1 \\ -5 - 8x, & x \ge 1 \end{cases}$$

A. $f(-3) =$ B. $f(-4) =$ C. $f(1) =$

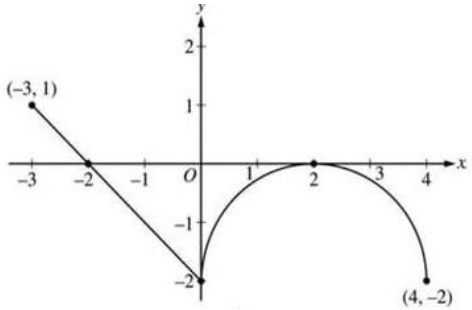
16. Determine the intervals over which the function is increasing, decreasing or constant.

A.



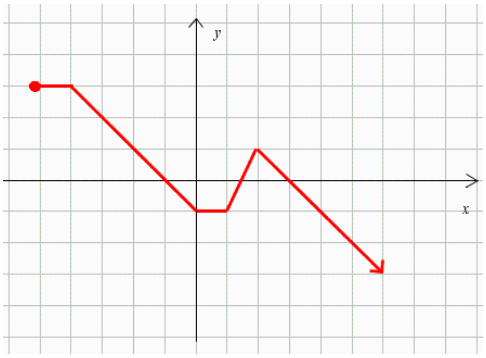
Increasing:
Decreasing:
Constant:

B.



Increasing:
Decreasing:
Constant:

C.



Increasing:
Decreasing:
Constant:

17. Find the x and y intercepts.

A. $\frac{2}{3}x+5y=11$

B. $y=4x^2-9$

C. $y+21=6x^2-5x$

18. Find the zeros.

A. $g(x)=5x^2+3x-7$

B. $h(x)=3x^3-26x^2-9x$

C. $m(x)=|2x-7|-5$

D. $f(x)=8(x-4)^2-16$

19. Find the values of x so that each statement is true.

$f(x)=7x^2-16x-3$ $\quad$ $g(x)=10x+5$

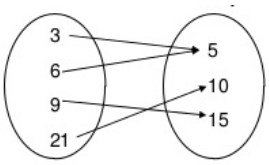
A. $f(x)=g(x)$

B. $g(x)=0$

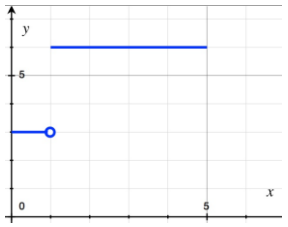
C. $f(x)=12$

20. Determine whether each is a function.

A.



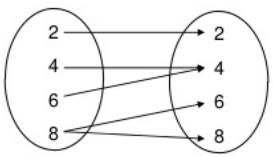
B.



C.

x	3	2	1	0	1	2	3
y	1	-2	2	4	-3	-2	-1

D.



E.

	A	B
1	Name	Marks
2	Tom	81
3	Bob	33
4	Martha	44
5	Brad	73
6	Glen	47
7	Mary	38
8	Stan	56