

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. Simplify the rational function and find the domain.

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

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

C. $f(x) = \frac{2x}{x-3} + \frac{5}{x^2 + x - 12}$

D. $f(x) = \frac{x+7}{2x-10} \cdot \frac{2x}{x^2 + 2x - 35}$

6. Find the domain of each function.

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

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

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

7. Find the difference quotient of each function.

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

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

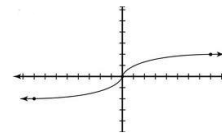
8. Determine if each function is even, odd or neither.

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

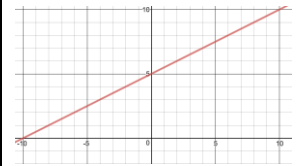
B. $f(x) = 9x^6 + x^2$

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

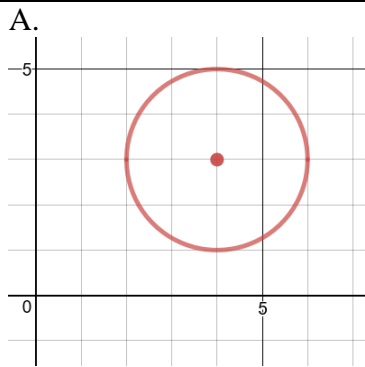
D.



E.



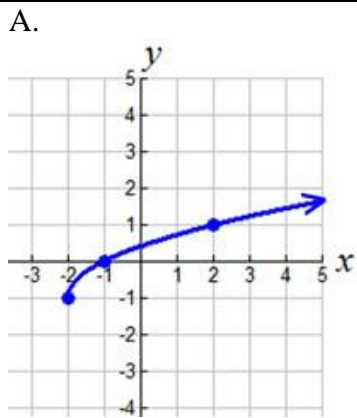
9. Write the equation of the circle in standard form. Identify the center and radius of each circle.



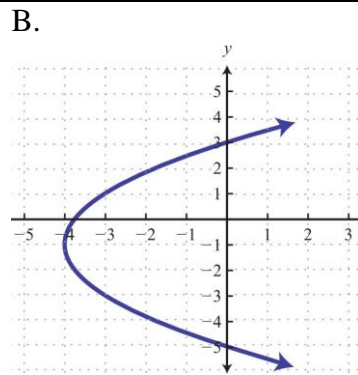
B. The endpoints of the diameter are $(0, 0), (-6, 6)$

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

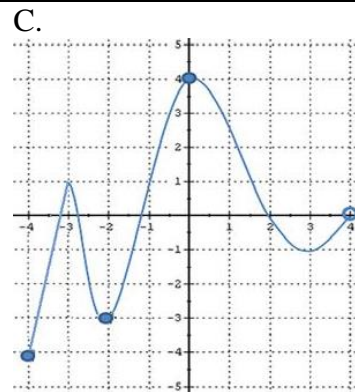
10. Find the domain and range of each graph.



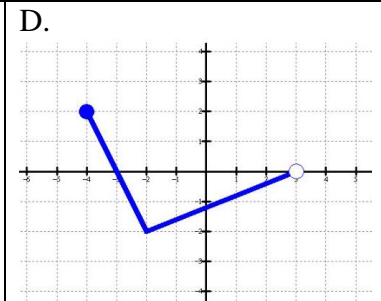
D:
R:



D:
R:



D:
R:



D:
R:

11. Factor each completely

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

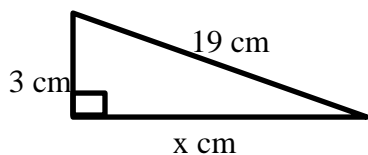
B. $f(x) = 2x^3 - x^2 - 8x + 4$

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?

13. Evaluate the function $f(x)$ for each input.

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

A. $f(-2)$

B. $f(3x)$

C. $f(x+3)$

14. The following problems have been incorrectly simplified. Please correctly simplify them.

A. $\frac{5x}{4} - \frac{x+1}{2} = \frac{3x+2}{4}$

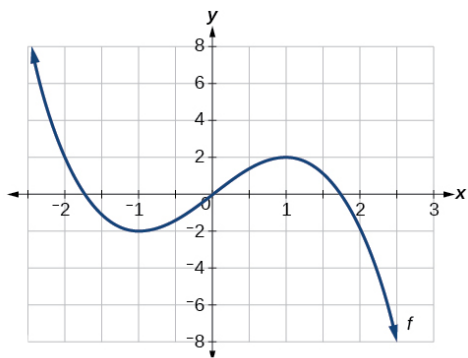
B. $\frac{8x^2+16}{4x} = 2x+4$

C. $(x+5)^2 = x^2 + 25$

D. $\frac{18x+6}{6x+6} = 3x$

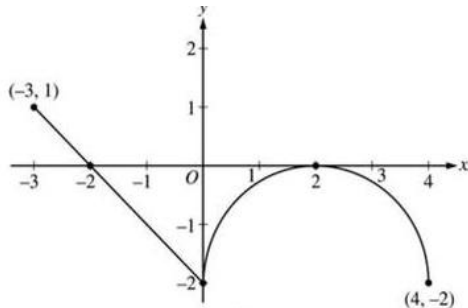
15. Determine the intervals over which the function is increasing, decreasing or constant.

A.



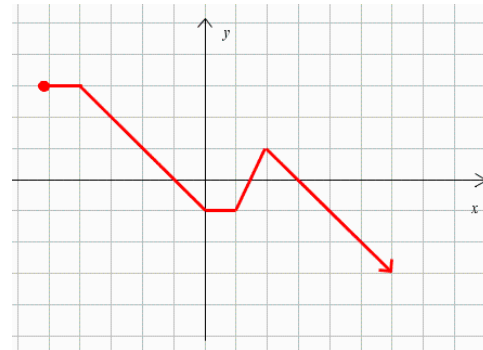
Increasing:
Decreasing:
Constant:

B.



Increasing:
Decreasing:
Constant:

C.



Increasing:
Decreasing:
Constant:

16. Find the x and y intercepts.

A.

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

B.

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

C.

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

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

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

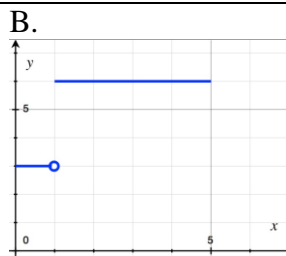
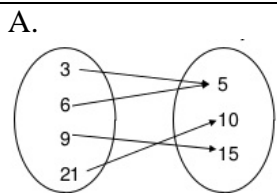
$$f(x) = 7x^2 - 16x - 3 \quad g(x) = 10x + 5$$

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

B. $g(x) = 0$

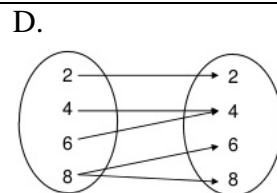
C. $f(x) = 12$

19. Determine whether each is a function.



C.

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



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

20. State the parent function and the shifts or reflection. Graph each function. Be sure to include 5 key points.

A. $f(x) = (x - 4)^2 - 3$

B. $f(x) = \sqrt{x + 5} + 7$

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

D. $f(x) = -|x|$

E. $f(x) = (-x)^3$

21. Write the graph of the equation using the shifts and the parent function.

