

Name: _____

Period: _____

1.2 Analyzing Functions 2019-20**Find the domain (write answer in interval notation).**

1. $f(x) = 3x + 2$

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

3. $f(x) = 5x^2 - 7x + 10$

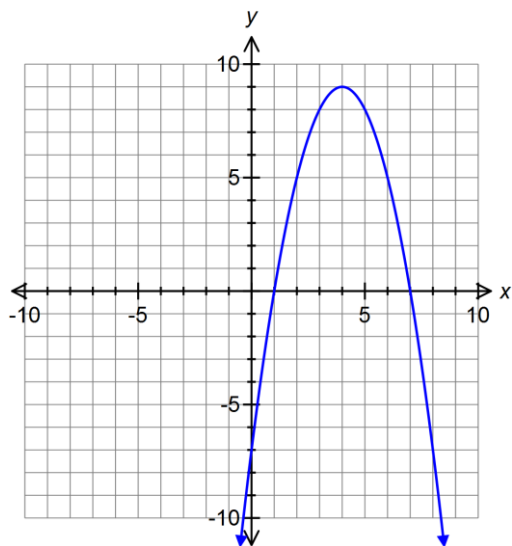
4. $f(x) = \sqrt{-x + 12}$

5. $f(x) = -4\sqrt{5x - 8}$

6. $f(x) = 7\sqrt{x - 4} + 18$

Fill in all requested information for each function. Write domain and range in interval notation and end behaviors in limit notation.

7. $f(x) = -x^2 + 8x - 7$

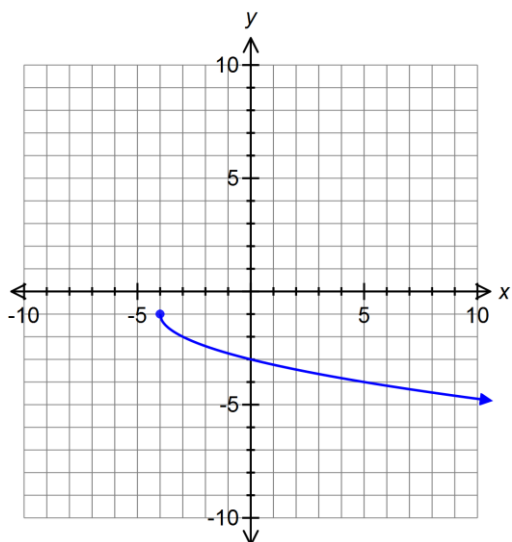


Domain: _____ Range: _____

Symmetry: _____

Left End Behavior: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$ Right End Behavior: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

8. $f(x) = -\sqrt{x+4} - 1$

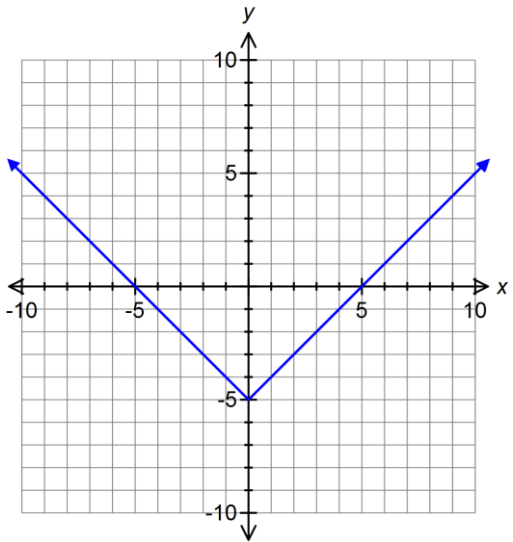


Domain: _____ Range: _____

Symmetry: _____

Left End Behavior: $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$ Right End Behavior: $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

9. $g(x) = |x| - 5$



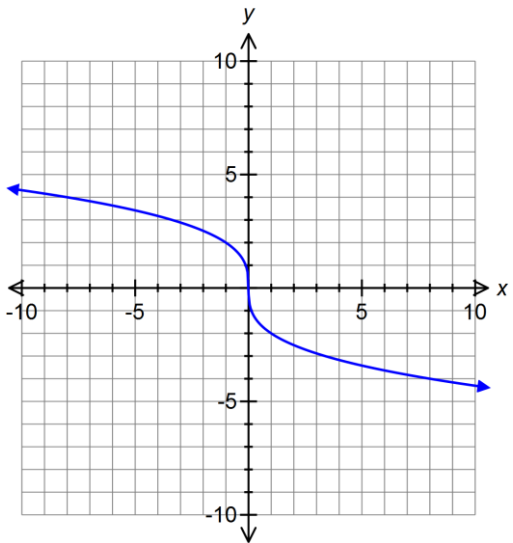
Domain: _____ Range: _____

Symmetry: _____

Left End Behavior: _____

Right End Behavior: _____

10. $g(x) = -2\sqrt[3]{x} = -2x^{\frac{1}{3}}$



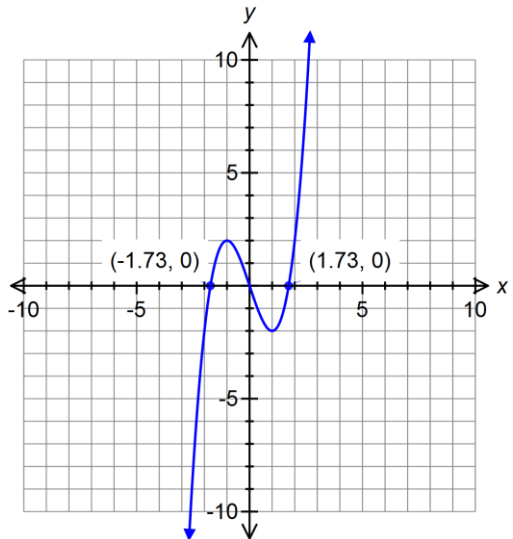
Domain: _____ Range: _____

Symmetry: _____

Left End Behavior: _____

Right End Behavior: _____

11. $h(x) = x^3 - 3x$



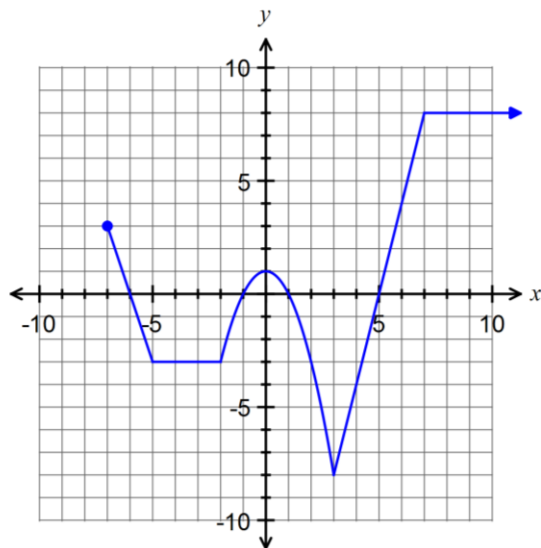
Domain: _____ Range: _____

Symmetry: _____

Left End Behavior: _____

Right End Behavior: _____

$$12. f(x) = \begin{cases} -3x-18 & \text{if } -7 \leq x < -5 \\ -3 & \text{if } -5 \leq x < -2 \\ -x^2+1 & \text{if } -2 \leq x < 3 \\ 4x-20 & \text{if } 3 \leq x < 7 \\ 8 & \text{if } x \geq 7 \end{cases}$$



Domain: _____ Range: _____

Symmetry: _____

Left End Behavior: _____

Right End Behavior: _____

Find the domain and range.

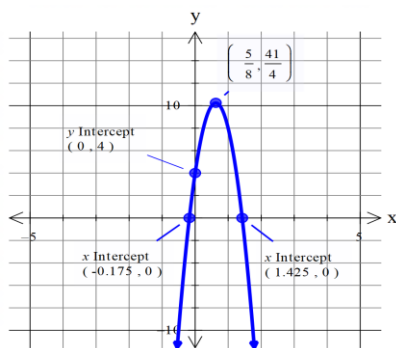
13. A car can travel 34 miles for each gallon of gas. The function $d(x) = 34x$ represents the distance $d(x)$, in miles that your car can travel in miles with x gallons of gas. The car's fuel tank holds 15 gallons of gas.

- Is the domain the gallons of gas or the distance traveled?
- Is the range the gallons of gas or the distance traveled?
- What is the real world domain?
- What is the real world range?

14. A candle is 20 cm tall and is burning at a rate of 4 cm per minute. The height $h(x)$ is a function of the total number of minutes the candle has burned.

- Write a function for the given situation.
- Is the domain the height or the minutes?
- Is the range the height or the minutes?
- What is the real world domain?
- What is the real world range?

15. The path of a ball thrown can be modeled by the equation $h(t) = -16t^2 + 20t + 4$ where t is time in seconds that the ball is in the air and h is the height of the ball. What is the real world domain and range for this situation?



Determine what kind of symmetry (algebraically), if any, each function has. Then use graphing calculator to check your answer, draw a sketch. Show work!

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

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

18. $f(x) = -2x^2 - 3x$

19. $f(x) = x^2 - 4$

20. $f(x) = |x + 2| - 4$

21. $f(x) = \sqrt{x}$

Find the end behavior of each function graphically. Write answer as a limit.

22. $f(x) = -3x + 5$

23. $f(x) = x^2 - 4x + 10$

24. $f(x) = |x + 4| - 1$

25. $f(x) = -\sqrt{x - 3} + 2$

Review Problems – Solve each equation.

26. $-2(2x - 6) = 4x + 9$

27. $\frac{7x-8}{3} = 2x + 5$

28. Solve for z .

$$3z + x - y = 2x + 4$$

29. Solve for L .

$$P = 2L + 2W$$