

Practice Test Unit 5 Family of Functions

For 1 & 2, circle the correct word for each statement below.

1. All of the possible x values for a function are called the (domain/range).

2. All of the possible y values for a function are called the (domain/range).

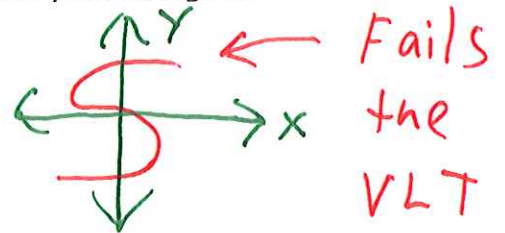
3. Name two other names for the y-values: Output, Range and Dependent

4. Name two other names for the x-values: Input, Domain and Independent

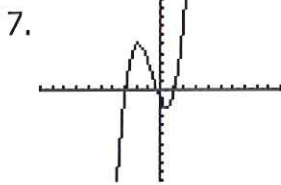
5. Identify the "test" can we use to see whether or not a graph is a function? Vertical Line Test (VLT)

6. Explain how to use this "test" and sketch a graph to help explain your thoughts.

A vertical line can only pass through 1 point at any part of a graph.

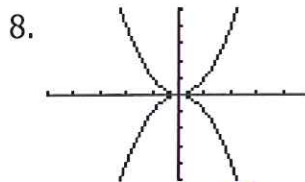


For 7–12, circle "YES" to state if the graph is a function or "NO" if it's not. Give a brief explanation.



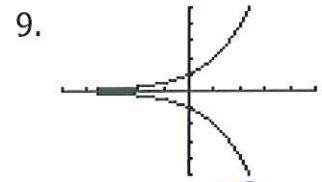
YES or NO

Passes the VLT



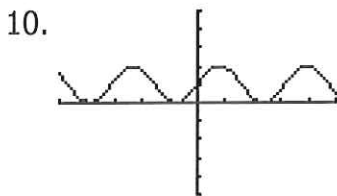
YES or NO

Fails the VLT



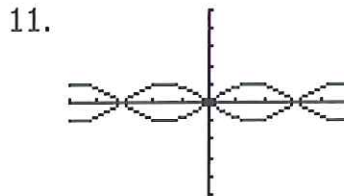
YES or NO

Fails the VLT



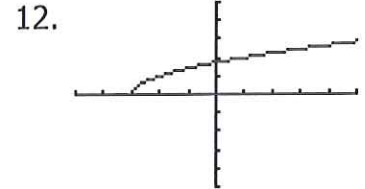
YES or NO

Passes the VLT



YES or NO

Fails the VLT



YES or NO

Passes the VLT

For 13–26, identify the name of the family to which each of the following functions belong to. (Hint: the families are Rational, Linear, Quadratic, Cubic, Exponential, Absolute Value, and Roots.)

13. $y = 12^x$ Exponential

14. $y = 1 - 2x$ Linear

15. $y = \sqrt{x+1}$ Root

16. $y = |-4x+1|$ Absolute Value

17. $y = 4 - x^2$ Quadratic

18. $y = \frac{391}{x}$ Rational (Inverse)

19. $y = 2.5^x$ Exponential

20. $y = 5x^3 + 4x^2 + 1$ Cubic

21. $y = \frac{9}{x-4}$ Rational (Inverse)

22. $y = |x|$ Absolute Value

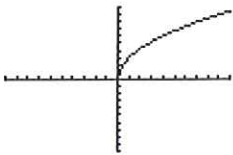
23. $y = 7x + 1$ Linear

24. $y = x^2$ Quadratic

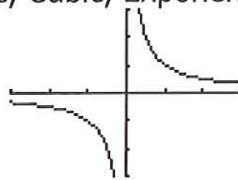
25. $y = -x^3$ Cubic

26. $y = \sqrt{7-x}$ Root

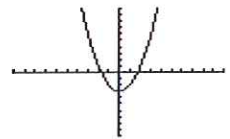
For 27–32, identify the name of the family to which each of the following graph belong to. (Hint: the families are Rational, Linear, Quadratic, Cubic, Exponential, Absolute Value, and Roots.)



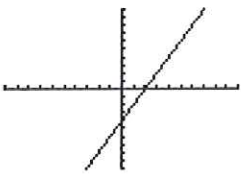
27. Root



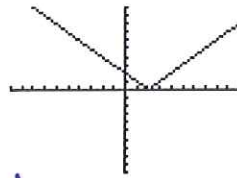
28. Rational (Inverse)



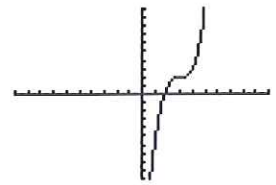
29. Quadratic



30. Linear

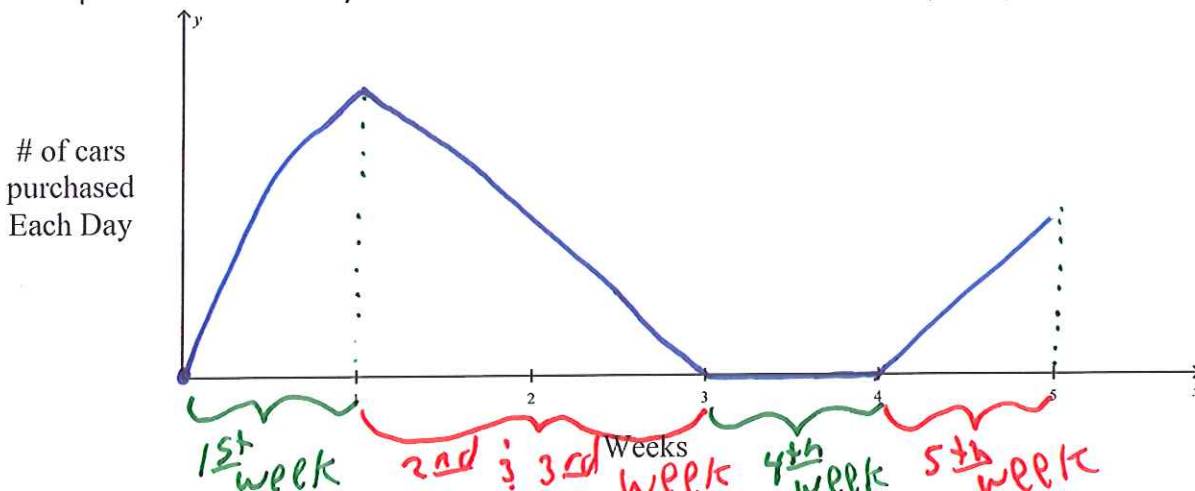


31. Absolute Value

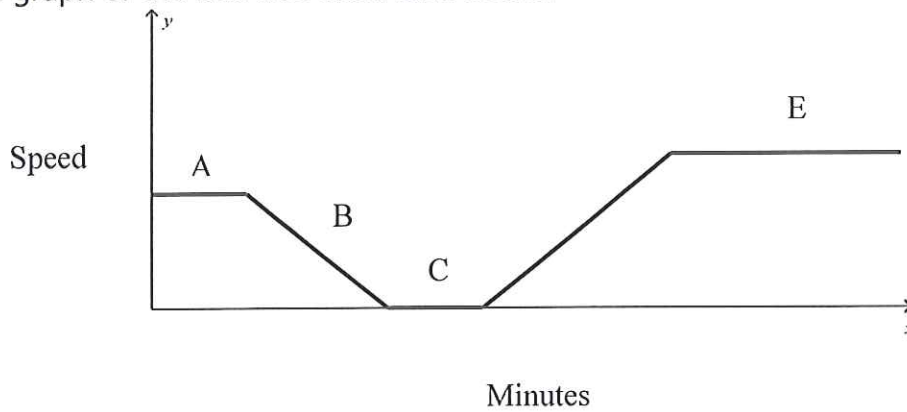


32. Cubic

33. A new car dealership is opening up. During the grand opening the dealership is extremely busy with patrons and many cars are bought. This continues for the first week that the dealership is open. During the second and third weeks there are less and less cars purchased each day. Due to a holiday, the dealership is closed during the fourth week. Finally during the fifth week the dealership settles into a steady pattern of cars being purchased each day. Sketch a graph showing the number of cars purchased each day over the first 5 weeks that the dealership is open.



34. Consider the graph of the bus ride illustrated below.



Explain what the bus is doing in each section of the graph.

- A Bus is traveling at a constant speed.
 B Bus is slowing down at a steady rate.
 C Bus is stopped.
 D Bus is going faster at a steady rate.
 E Bus is traveling at a constant speed.

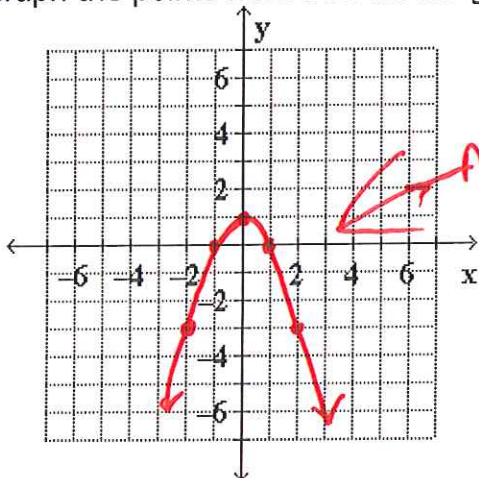
For 35–37, Use the rule, $y = -x^2 + 1$ to the answer the questions.

35. Use the rule to evaluate the output values by using the input values given from the table. Show the calculation in the "work" box.

| x | -2 | -1 | 0 | 1 | 2 |
|------|---|--|---|---|--|
| Work | $y = -(-2)^2 + 1$ $y = -4 + 1$ $y = -3$ | $y = -(-1)^2 + 1$ $y = -1 + 1$ $y = 0$ | $y = -(0)^2 + 1$ $y = -0 + 1$ $y = 1$ | $y = -(1)^2 + 1$ $y = -1 + 1$ $y = 0$ | $y = -(2)^2 + 1$ $y = -4 + 1$ $y = -3$ |
| y | -3 | 0 | 1 | 0 | -3 |

$(-2, -3)$ $(-1, 0)$ $(0, 1)$ $(1, 0)$ $(2, -3)$

36. Graph the points from #35 on the grid below.

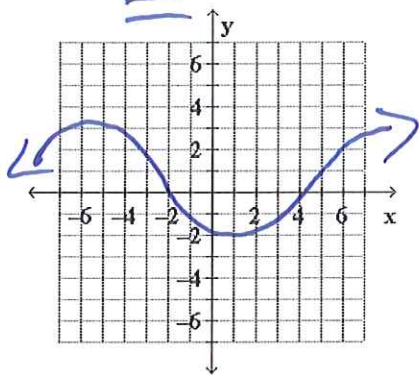


37. Identify the family it belongs to?

Quadratic

A nice smooth curve

38. Sketch an example of a function that is not linear.



39. Create an example equation of a function that is not linear.

$$\underline{y = x^2}$$

For 40–42, use the table and the following information. Karly is 8 years old. Every year on her birthday her parents measure and record her height in inches. Her height for each birthday is charted in the table below.

| AGE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------|----|----|----|----|----|----|----|----|
| HEIGHT | 29 | 32 | 34 | 35 | 37 | 38 | 39 | 41 |

40. Identify the independent variable? Age

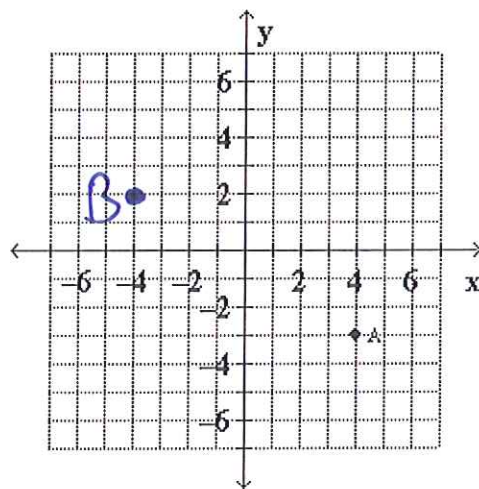
41. Identify the dependent variable? Height

42. Distinguish if this is a function? Circle One: YES or NO

For 43 & 44, use the graph to the right.

43. Identify the coordinates of Point A. (4, -3)

44. Plot a point at the coordinate (-4, 2) and label it B.



For 45 & 46 use the relation below to answer the question.
 $\{(2, 6), (5, 1), (7, -4), (-9, 2), (8, 6), (7, 3)\}$

45. Distinguish if this is a function? Circle One: YES or NO

46. Explain why it is or isn't a function.

The x-value of 7 has two y-values. Each x-value can only correspond to one y-value.