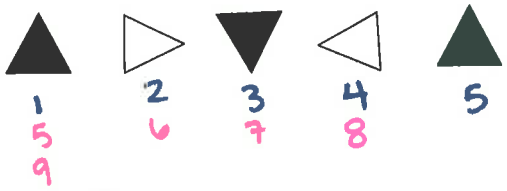
Foundations of Functions Review
Algebra 1: Unit 2

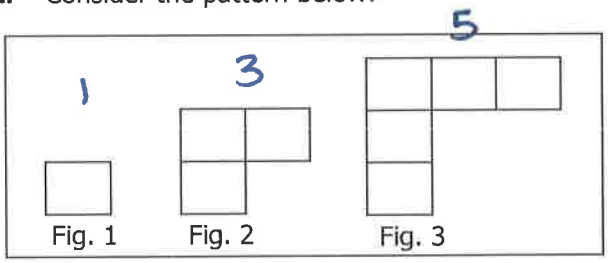
Name KEY

1. Use the sequence of shapes to answer the questions.



a. Draw the 9th figure.

2. Consider the pattern below:



What is the pattern rule?

2n+1

3. If n represents a number's position in the sequence, write the first four numbers in the sequence described by the expression, $n(n-8)+3$.

-4 -9 -12 -13

CALCULATOR:
1) X(X-8)+3 into Y=
2) 2nd GRAPH
3) pick X=1, X=2, X=3, X=4

4. Which expression can be used to find the nth term in the following sequence, where n represents a number's position in the sequence?

Position in Sequence	1	3	6	9	n
Term	5	9	15	21	

PLUG IN n=9!

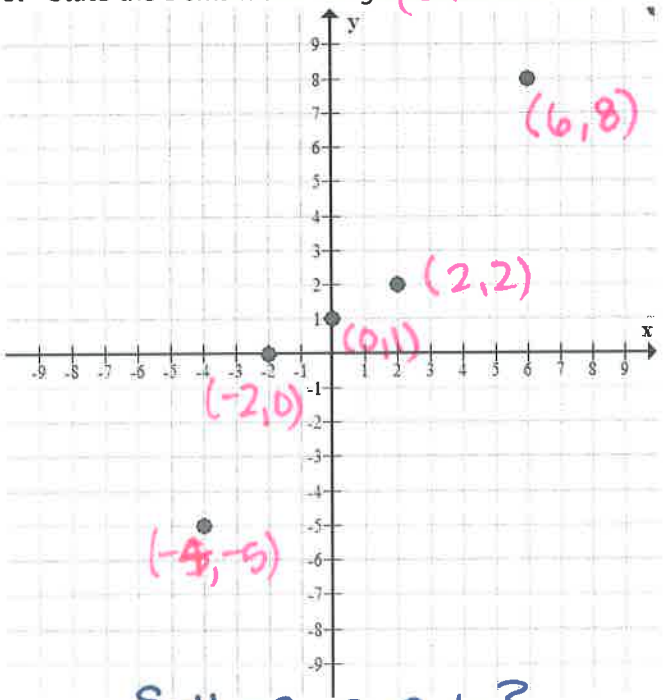
~~A.~~ n + 4
~~B.~~ 4n + 1
C. 2n + 3
D. 2n

5. Given the pattern rule 4 + 5n what is the term number if it takes 154 blocks to build the pattern?

$154 = 4 + 5n$
$-4 \quad -4$
$\frac{150}{5} = \frac{5n}{5}$

n=30

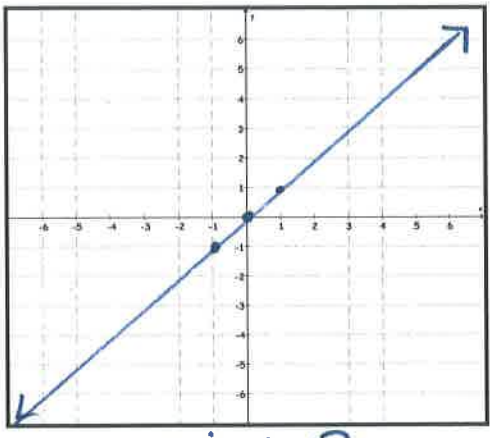
6. State the Domain and Range. (DISCRETE)



Domain: {-4, -2, 0, 2, 6}

Range: {-5, 0, 1, 2, 8}

7. Graph the parent function $y = x$ on the graph below, and then state the domain & range.



Domain: $\mathbb{R}$
Range: $\mathbb{R}$

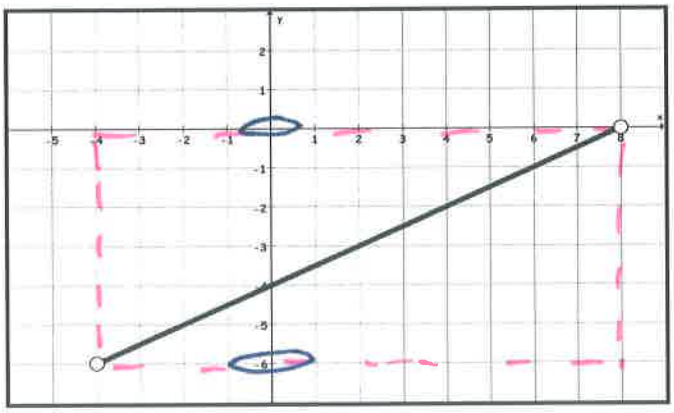
8. Evaluate the following expression for x = -3

$X^2 + 3x + 12$

$(-3)^2+3(-3)+12$

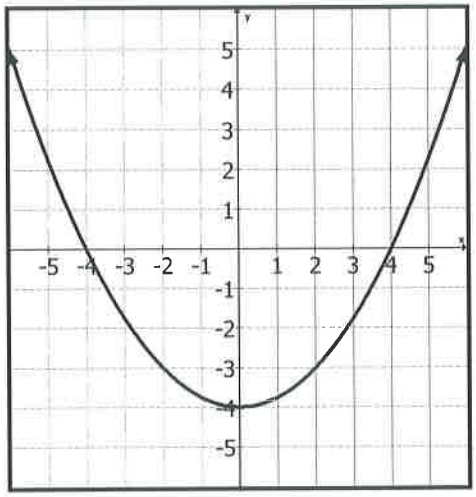
12

9. What is the range of the function shown on the graph?



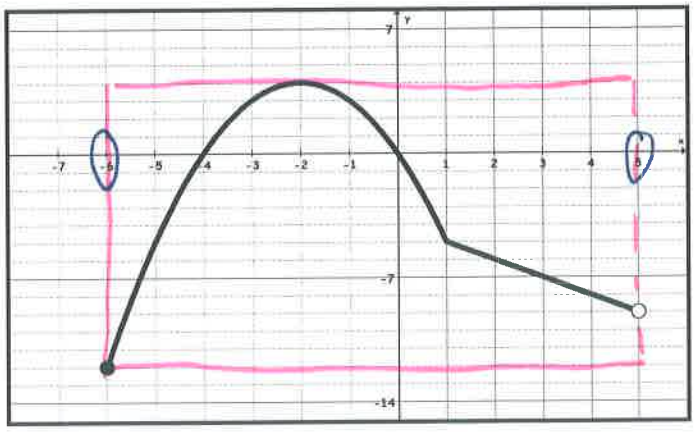
$-6 < y < 0$

10. Which type of parent function is represented by the graph below?



A Exponential
B Absolute Value
C Linear
(D) Quadratic

11. What is the domain of the function shown in the graph?



D: $-6 \leq x < 5$

12. Maria wants to make a long-distance telephone call to her friend. She does not want to spend more than $6.50 on the telephone call. If there is a $0.20 connection fee and a charge of $0.24 per minute, write and graph an inequality that best represents this situation.

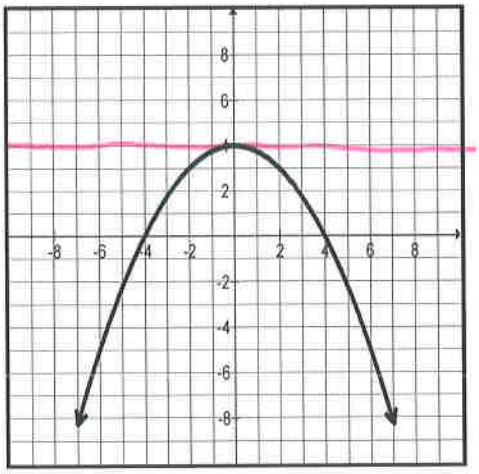
$0.20 + .24x \leq 6.50$

$-.20 \quad -.20$

$\frac{.24x}{.24} \leq \frac{6.3}{.24}$

$x \leq 26.25$

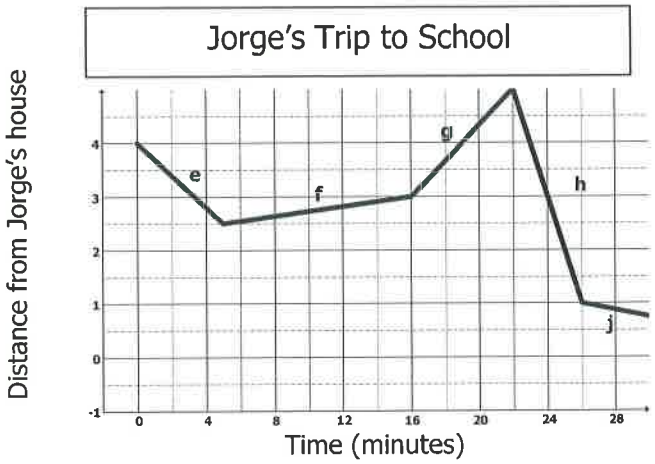
13. State the domain and range of the graph shown below.



D: $\mathbb{R}$

R: $-\infty < y \leq 4$

14 – 15. OH NO. Jorge left his math homework in his locker! The graph below represents Jorge's car trip from his house to school and then back to his house. Each section of the graph represents part of Jorge's trip.



14. Which part of Jorge's trip was he going the slowest, but not standing still? F

15. During which part of the trip was Jorge traveling the fastest? H

16. During which part of the trip was Jorge at the school? OMIT

17. State the domain and range of the following set of ordered pairs.

{(-3, 6), (0, 4), (3, 5), (-2, -6), (1, 10)}

Domain: $\{-3, -2, 0, 1, 3\}$

Range: $\{-6, 4, 5, 6, 10\}$

Continuous or discrete?

18. Solve the following equation for y

$z \cdot x = \frac{y+3}{z} \cdot z$

$zx = y + 3$

$-3 \quad -3$

$zx - 3 = y$

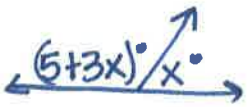
19. The formula for density is $D = \frac{m}{V}$. Solve the the equation for V.

$V \cdot D = \frac{m}{V} \cdot V$

$\frac{VD}{D} = \frac{m}{D}$

$V = \frac{m}{D}$

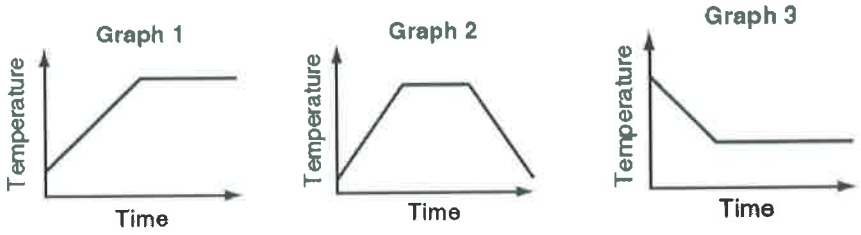
20. Write the equation that can be used to find the measure of two supplementary (180°) angles, where the measure of one angle is 5 more than triple the other.



$5 + 3x + x = 180$

$4x + 5 = 180$

Choose the graph that best represents the situation.



21. Rebekah turns on the oven and sets it to 300°F. She bakes a tray of cookies and then turns the oven off.

A. Graph 1
B. Graph 2
C. Graph 3

22. Leon puts ice cubes in his soup to cool it down before eating it.

A. Graph 1
B. Graph 2
C. Graph 3

23. Baylee has the flu and her temperature rises slowly until it reaches 101°F.

A. Graph 1
B. Graph 2
C. Graph 3