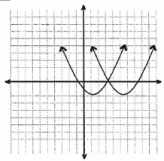


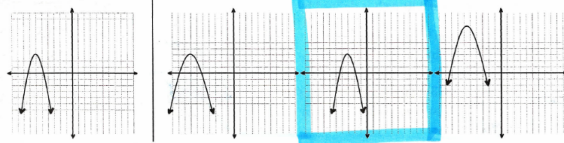
1. What is different about these two graphs?

- a) Domain      b) Range  
 c) Axis of Symmetry      d) Stretch Factor



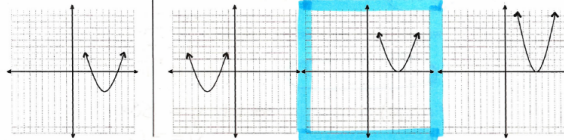
2.  $y = a(x - h)^2 + k$

Which graph has a change in "h" only?



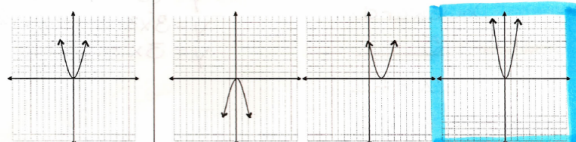
3.  $y = a(x - h)^2 + k$

Which graph has a change in "k" only?



4.  $y = a(x - h)^2 + k$

Which graph has a change in "a" only?

\*\*\* Use the following equation for questions (5 - 7):  $\frac{1}{2}(y - 3) = (x + 4)^2$ 

5. The "3" moves the graph:

- a) up/down      b) left/right      c) and stretches it      d) and reflects it in the x-axis

6. The "4" moves the graph:

- a) up/down      b) left/right      c) and stretches it      d) and reflects it in the x-axis

7. The "
- $\frac{1}{2}$
- ":

- a) moves the graph up/down      b) moves the graph sideways      c) stretches the graph      d) flips the graph

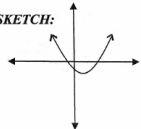
8. The parabola shown in the diagram has its x-intercepts at (-3, 0) and (11, 0). Which one of the following "could" be the vertex:

- a) (4, -5)      b) (14, -3)  
 c) (8, -2)      d) (7, 4)

Average of x-values:  

$$\frac{-3 + 11}{2} = \frac{8}{2} = 4$$

SKETCH:



9. A ball is kicked and its graph is defined by
- $-\frac{1}{5}(y - 20) = (x - 6)^2$
- . What is the maximum height?

How long does it take to reach the maximum height?  $\frac{20}{\frac{1}{5}} = 100$  s  
 a) 20 m      b) 5 m      c) 20 m      d) 6 m      e) 20 s

10. Which of the following equations could be used to find the area, if you had 200 m of material to construct a fence around the following area?

- a)  $y = (200 - x)(x)$       b)  $y = (100 - 2x)(x)$   
 c)  $y = (200 - 2x)(x)$       d)  $y = (100 - x)(2x)$

\*\*\*A rocket is launched and its path is defined by  $h = -4t^2 + 40t$ . Use this equation to answer (11 - 13)

11. What is the maximum height of the rocket?

- a) 40 m      b) 160 m      c) 10 m      d) 100 m

12. How much time would it take the rocket to hit the ground?

- a) 10 seconds      b) 5 seconds      c) 4 seconds      d) 20 seconds

13. How high would the rocket be after 3 seconds?

- a) 40 m      b) 84 m      c) 156 m      d) 100 m

Vertex (5, 100)  
 $h = -4(3)^2 + 40(3)$   
 $h = -36 + 120$   
 $h = 84$

14. If  $y = 3(x-2)^2 + 1$  was placed in general form, it would be:

- a)  $y = 3x^2 - 6x + 3$    b)  $y = 3x^2 - 12x + 13$    c)  $y = 3x^2 - 6x + 13$    d)  $y = 3x^2 - 6x + 3$

$$\begin{aligned} y &= 3(x-2)^2 + 1 \\ y &= 3(x-2)(x-2) + 1 \\ y &= (3x-6)(x-2) + 1 \\ y &= 3x^2 - 6x - 6x + 12 + 1 \\ y &= 3x^2 - 12x + 13 \end{aligned}$$

15.  $-\frac{1}{5}(y+2) = (x-1)^2$  (TF)

Vertex (1, -2)

Direction downward

Stretch Factor 5

Axis of Symmetry  $x = 1$

Domain  $\{x | x \in \mathbb{R}\}$

Range  $\{y | y \leq -2, y \in \mathbb{R}\}$

16.  $3(y-2) = x^2 \Rightarrow 3(y-2) = (x-0)^2$  (TF)

Vertex (0, 2)

Direction upward

Stretch Factor  $\frac{1}{3}$

Axis of Symmetry  $x = 0$

Domain  $\{x | x \in \mathbb{R}\}$

Range  $\{y | y \geq 2, y \in \mathbb{R}\}$