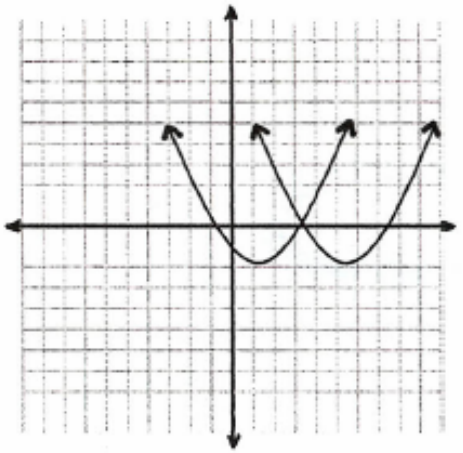
Math 11

Quadratics #2 – Review #2

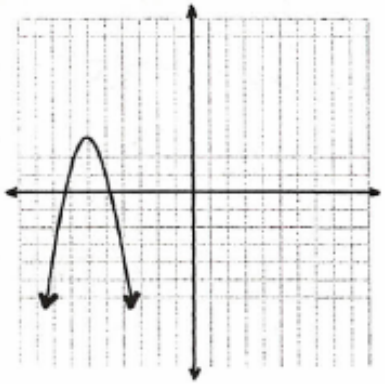
SOLUTIONS

1. What is different about these two graphs?

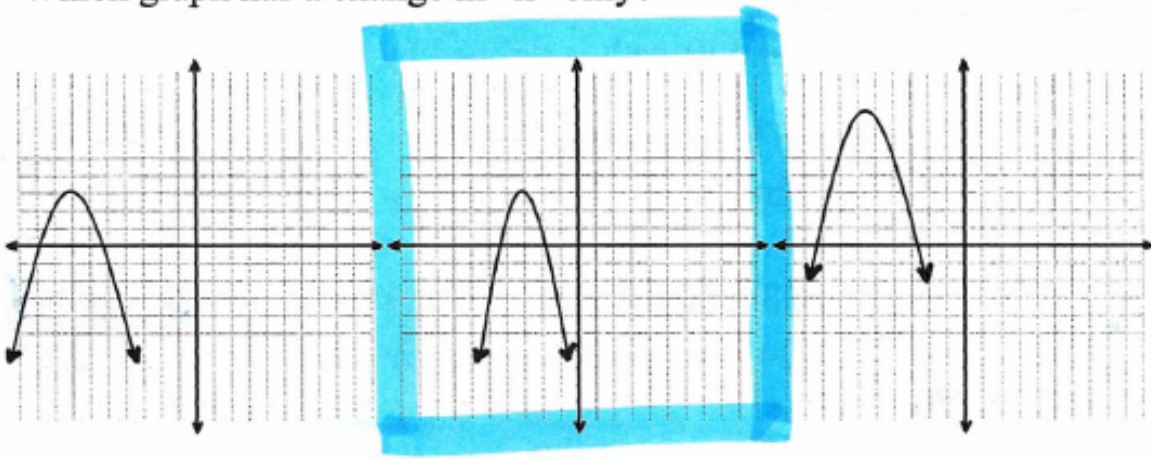


a) Domain
b) Range
c) Axis of Symmetry
d) Stretch Factor

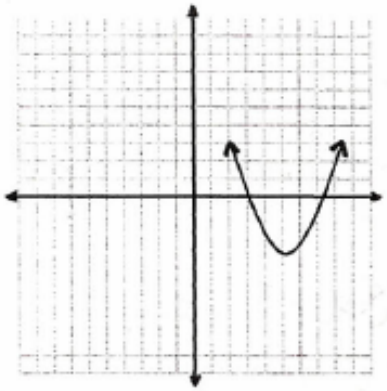
2. $y = a(x - h)^2 + k$



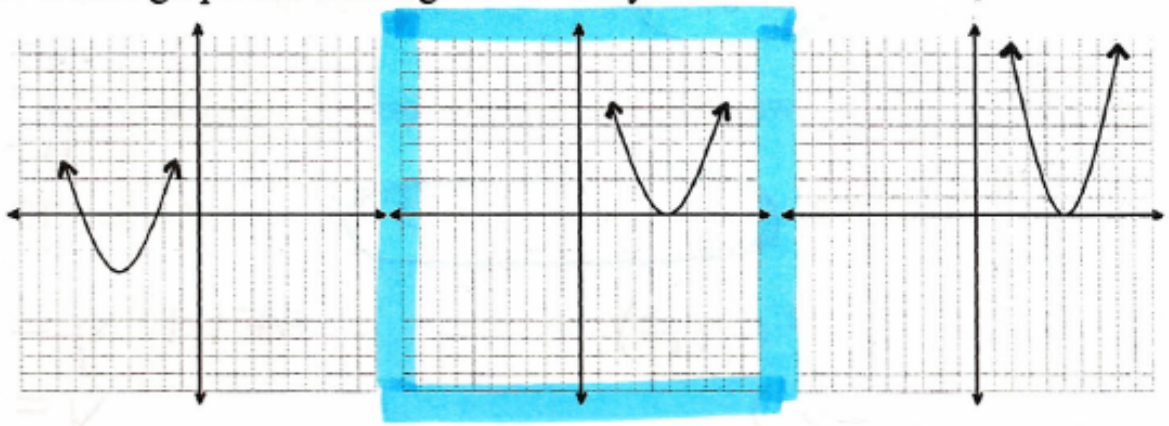
Which graph has a change in "h" only?



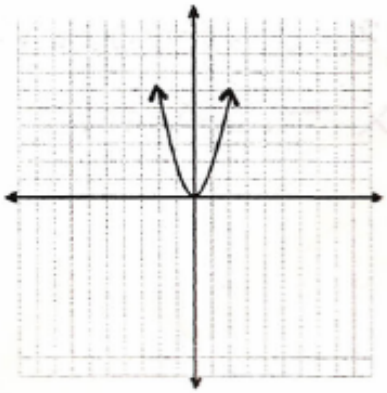
3. $y = a(x - h)^2 + k$



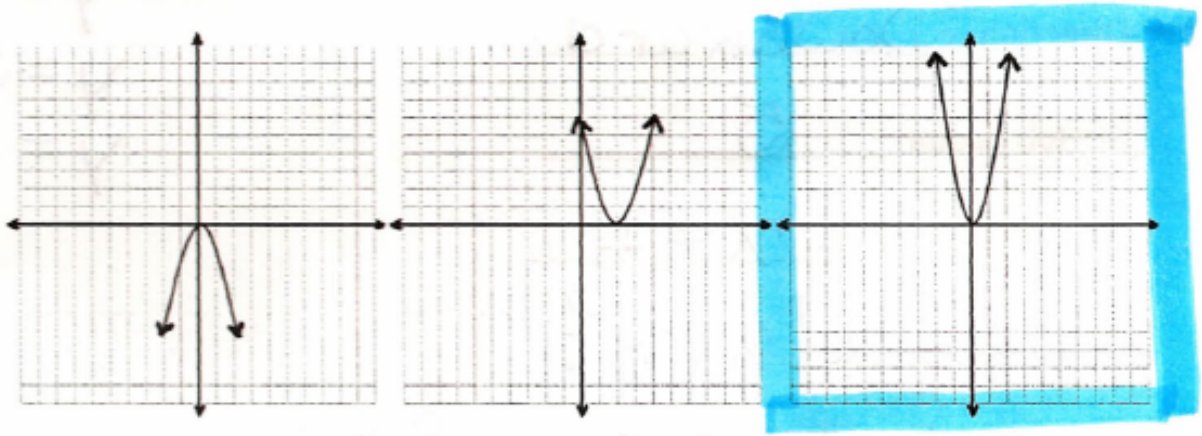
Which graph has a change in "k" only?



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

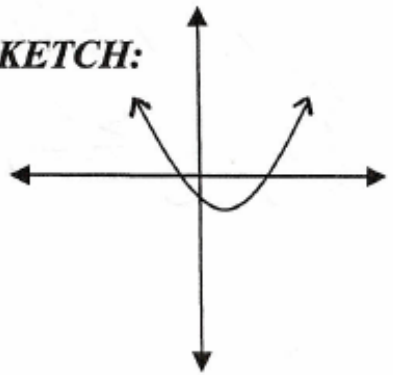
6. The "4" moves the graph:
   a) up/down b) left/right c) and stretches it d) and reflects it in the x-axis

7. The " ½ " :
   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)

SKETCH:



Average of x-values:

$\frac{-3+11}{2}=\frac{8}{2}=(4,?)$

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?

20 Height 6 Time

Vertex: (6, 20) ↓ T ↘ H

a) 20 m 6 s b) 5 m 6 s c) 20 m 5 s d) 6 m 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?

P = 200m
Let x = width
200 − 2x = length
A = l × w
A = (200 − 2x)(x)

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)

$h=-4t^2+40t$
$h=-4(t^2-10t)$
$h-100=-4(t^2-10t+25)$
$h-100=-4(t-5)^2$
$h=-4(t-5)^2+100$
* Vertex (5, 100)
↑ Time to reach Max. Height
↑ Max. height

11. What is the maximum height of the rocket?

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

12. How much time would it take the rocket to hit the ground? 5 × 2

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

$h=-4(3)^2+40(3)$
$h=-4(9)+120$
$h=-36+120$
$h=84m$

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) $y = 3x^2 - 6x + 3$

$y = 3(x-2)^2 + 1$

$y = 3(x-2)(x-2) + 1$

$y = (3x-6)(x-2) + 1$

$y = 3x^2 - 6x - 6x + 12 + 1$

$y = 3x^2 - 12x + 13$

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

Vertex (1,-2)

Direction Downward

Stretch Factor 5

Axis of Symmetry $x=1$

Domain $\{x \mid x \in R\}$

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

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

Vertex (0,2)

Direction Upward

Stretch Factor 1/3

Axis of Symmetry $x=0$

Domain $\{x \mid x \in R\}$

Range $\{y \mid y \geq 2, y \in R\}$