

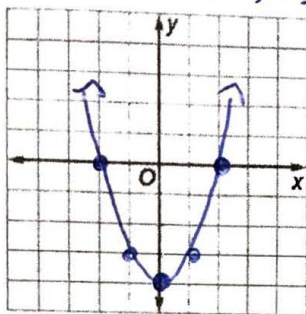
Name: Key

Period: 4th

Quadratics Graphing Mock Test Review

Use a table of values to graph each function. State the domain and the range.

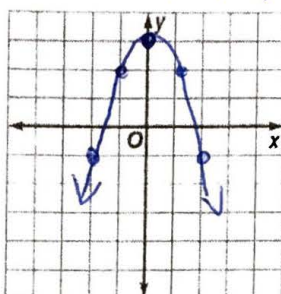
1. $y = x^2 - 4$ D: $(-\infty, \infty)$
R: $[-4, \infty)$



X	Y
-2	0
-1	-3
0	-4
1	-3
2	0

Vertex:
 $X = \frac{-b}{2a} = \frac{0}{2} = 0$
 $Y = (0)^2 - 4 = -4$
Other points will vary

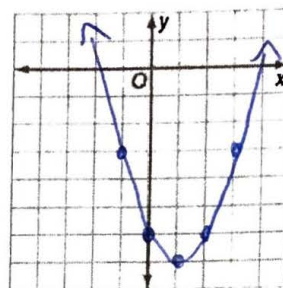
2. $y = -x^2 + 3$ D: $(-\infty, \infty)$
R: $(-\infty, 3]$



X	Y
-2	-1
-1	2
0	3
1	2
2	-1

Vertex:
 $X = \frac{-b}{2a} = \frac{0}{-2} = 0$
 $Y = -(0)^2 + 3 = 3$
Other points will vary

3. $y = x^2 - 2x - 6$ D: $(-\infty, \infty)$
R: $[-7, \infty)$



X	Y
-1	-3
0	-6
1	-7
2	-6
3	-3

Vertex:
 $X = \frac{-b}{2a} = \frac{-(-2)}{2(1)} = \frac{2}{2} = 1$
 $Y = (1)^2 - 2(1) - 6 = -7$
Other points will vary

Find the vertex, the equation of the axis of symmetry, and the y-intercept of the graph of each function.

4. $y = 2x^2 - 8x + 6$

Vertex:
 $X = \frac{-b}{2a} = \frac{-(-8)}{2(2)} = \frac{8}{4} = 2$
 $Y = 2(2)^2 - 8(2) + 6 = -2$
(2, -2) **Axis = x = 2**

Y-int: $2(0)^2 - 8(0) + 6 = 6$

5. $y = x^2 + 4x + 6$

Vertex:
 $X = \frac{-b}{2a} = \frac{-4}{2(1)} = -2$
 $Y = (-2)^2 + 4(-2) + 6 = -2$
(-2, -2) **Axis = x = -2**

Y-int: $(0)^2 + 4(0) + 6 = 6$

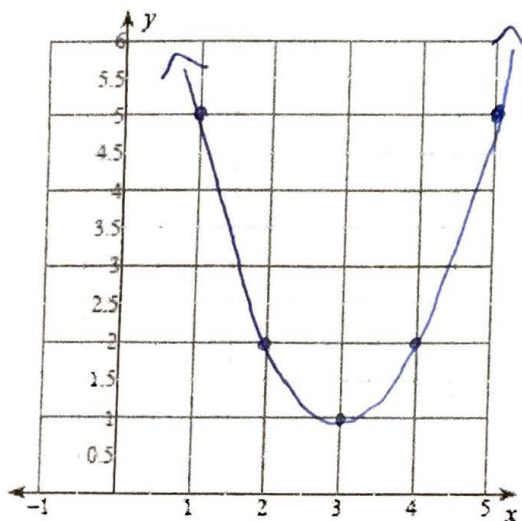
6. $y = -3x^2 - 12x + 3$

Vertex:
 $X = \frac{-b}{2a} = \frac{-(-12)}{2(-3)} = \frac{12}{-6} = -2$
 $Y = -3(-2)^2 - 12(-2) + 3 = 15$
(-2, 15) **Axis = x = -2**

Y-int: $-3(0)^2 - 12(0) + 3 = 3$

Use a table of values to graph each function. State the domain and the range, the minimum and the maximum in interval notation form.

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



X	Y
1	5
2	2
3	1
4	2
5	5

Other points will vary

Vertex: (h, k) so: **(3, 1)**

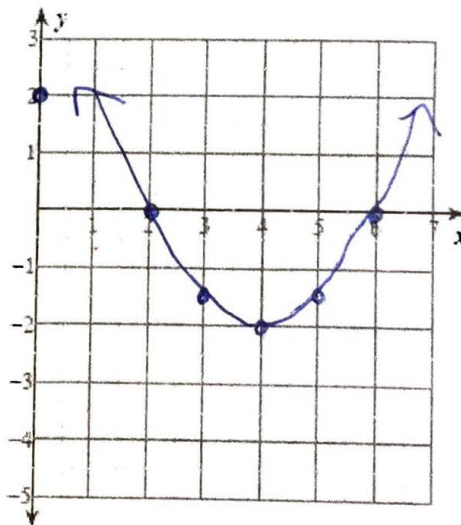
Domain: $(-\infty, \infty)$

Range: $[1, \infty)$

Minimum: $y = 1$, or $(0, 1)$

Maximum: $y = \infty$, so no max

8) $y = \frac{1}{2}(x - 4)^2 - 2$



X	Y
2	0
3	-1.5
4	-2
5	-1.5
6	0

Other points will vary

Vertex = (h, k) so: **(4, -2)**

Domain: $(-\infty, \infty)$

Range: $[-2, \infty)$

Minimum: $y = -2$, or $(0, -2)$

Maximum: $y = \infty$, so no max

In 9-15, check the transformations that have occurred in each function.

$y = a(x-h)^2 + k$	
9. $y = (x-2)^2 + 9$ <input type="checkbox"/> Wider <input type="checkbox"/> Narrower <input checked="" type="checkbox"/> Shifted Up <input type="checkbox"/> Shifted Down <input type="checkbox"/> Shifted Left <input checked="" type="checkbox"/> Shifted Right <input type="checkbox"/> Reflected	13. $y = \frac{1}{8}(x-7)^2 + 1$ <input checked="" type="checkbox"/> Wider <input type="checkbox"/> Narrower <input checked="" type="checkbox"/> Shifted Up <input type="checkbox"/> Shifted Down <input type="checkbox"/> Shifted Left <input checked="" type="checkbox"/> Shifted Right <input type="checkbox"/> Reflected
10. $y = 3(x+3)^2 + 3$ <input type="checkbox"/> Wider <input checked="" type="checkbox"/> Narrower <input checked="" type="checkbox"/> Shifted Up <input type="checkbox"/> Shifted Down <input checked="" type="checkbox"/> Shifted Left <input type="checkbox"/> Shifted Right <input type="checkbox"/> Reflected	14. $y = .01(x-100)^2$ <input checked="" type="checkbox"/> Wider <input type="checkbox"/> Narrower <input type="checkbox"/> Shifted Up <input type="checkbox"/> Shifted Down <input type="checkbox"/> Shifted Left <input checked="" type="checkbox"/> Shifted Right <input type="checkbox"/> Reflected
11. $y = -(x-2)^2 - 2$ <input type="checkbox"/> Wider <input type="checkbox"/> Narrower <input type="checkbox"/> Shifted Up <input checked="" type="checkbox"/> Shifted Down <input type="checkbox"/> Shifted Left <input checked="" type="checkbox"/> Shifted Right <input checked="" type="checkbox"/> Reflected	15. $y = -.2(x+1)^2 - 2$ <input checked="" type="checkbox"/> Wider <input type="checkbox"/> Narrower <input type="checkbox"/> Shifted Up <input checked="" type="checkbox"/> Shifted Down <input checked="" type="checkbox"/> Shifted Left <input type="checkbox"/> Shifted Right <input checked="" type="checkbox"/> Reflected

In the following problems, write an equation that shows the appropriate transformations from the description.

$y = a(x-h)^2 + k$
9. compressed by a factor of $\frac{1}{3}$, reflected, shifted left 1 unit, shifted up 2 units
10. stretched by a factor of 8, shifted right 1 unit, shifted up 2 units
11. compressed by a factor of $\frac{1}{2}$, horizontally and vertically translated 5 units
12. reflected, horizontally translated 2 units, and compressed by a factor of $\frac{1}{6}$, shifted up 6 units

Write the new equations below:
$Y = -\frac{1}{3}(x+1) + 2$
$Y = 8(x-1) + 2$
$Y = \frac{1}{2}(x-5) + 5$
$Y = -\frac{1}{6}(x-2) + 6$

Write the equation for the parabola in vertex form.

20. $y = x^2 + 6x - 8$

$a = 1$

$h = x = \frac{-b}{2a} = \frac{-6}{2(1)} = \frac{-6}{2} = -3$

$K = y = x^2 + 6x - 8$

$y = (-3)^2 + 6(-3) - 8$

$y = -17$

$y = (x+3)^2 - 17$

Write in standard form.

22. $y = (x+3)^2 - 2$

$(x+3)(x+3) - 2$

$x^2 + 3x + 3x + 9 - 2$

$y = x^2 + 6x + 7$

21. $y = -3x^2 - 6x + 7$

$a = -3$

$h = x = \frac{-b}{2a} = \frac{-(-6)}{2(-3)} = \frac{6}{-6} = -1$

$K = y = -3x^2 - 6x + 7$

$y = -3(-1)^2 - 6(-1) + 7$

$y = 10$

$y = -3(x+1)^2 + 10$

23. $y = (4x+1)(2x-3)$

$8x^2 + 2x + (-12x) - 3$

$y = 8x^2 - 10x - 3$

Convert to vertex form algebraically and then check graphically.

24. $y = (x-2)(x+6)$

Standard:

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

$y = x^2 + 4x - 12 \rightarrow \text{vertex: } y = (x+2)^2 - 16$

$a = 1$
 $h = -2$ $K = -16$

25. $y = 3x^2 + 4x - 3$

$a = 3$

$h = -\frac{2}{3}$

$K = -4.3$

