

Algebra 1
Transformed Quadratics WS

Name Key

Describe how the following equations transformed from $f(x) = x^2$

1. $y = x^2 - 5$

Down 5

2. $y = -(x-5)^2$

Reflected over x-axis
Right 5

3. $y = 2(x+4)^2 - 6$

Vertical dilation of 2
Left 4, down 6

4. $y = 3x^2$

vertical dilation of 3

State the domain, range, vertex and axis of symmetry for the following quadratics.

5. $y = \frac{1}{3}(x+1)^2$

D: $x \in (-\infty, \infty)$

R: $y \in [0, \infty)$

V: $(-1, 0)$

AOS: $x = -1$

6. $y = -\frac{1}{2}(x-3)^2 + 7$

D: $x \in (-\infty, \infty)$

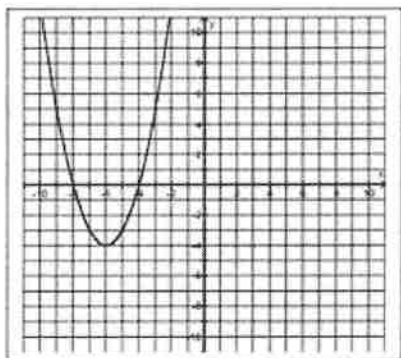
R: $y \in (-\infty, 7]$

V: $(3, 7)$

AOS: $x = 3$

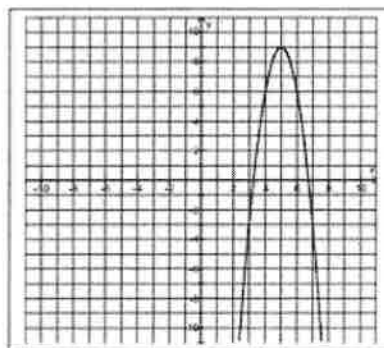
Write the equation for each transformed quadratic.

7.



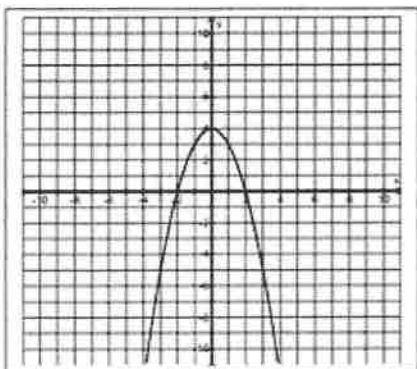
$y = (x+6)^2 - 4$

8.



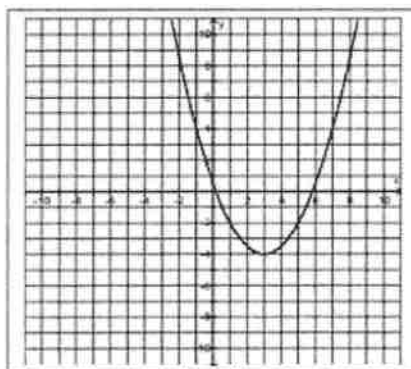
$y = -3(x-5)^2 + 9$

9.



$y = -x^2 + 4$

10.



$y = \frac{1}{2}(x-3)^2 - 3$

Write the quadratic equations under the specific transformations from $y = x^2$

11. Translated 1 unit to the right and 5 units down

$$y = (x - 1)^2 - 5$$

12. Reflected over the x-axis and translated 4 units to the left and 9 units up

$$y = -(x + 4)^2 + 9$$

13. Vertical dilation of 2 and then reflected about the x-axis

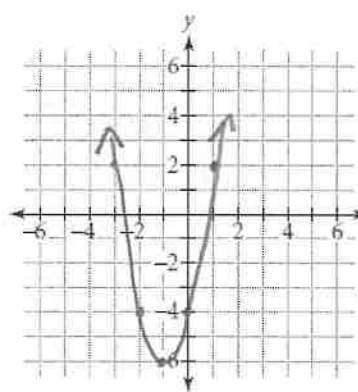
$$y = -2x^2$$

14. Reflected over the **x**-axis and then shift up 10 units.

$$y = -x^2 + 10$$

Graph the following quadratics. Then state the domain, range, vertex and axis of symmetry.

15. $y = 2(x + 1)^2 - 6$



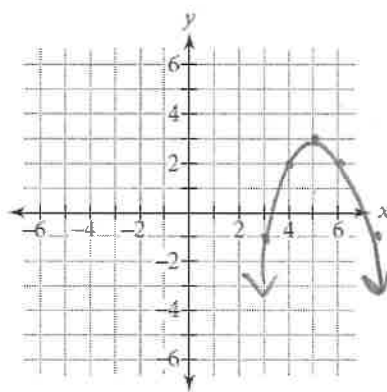
$D: x \in (-\infty, \infty)$

$R: y \in [-6, \infty)$

$V: (-1, -6)$

$AOS: x = -1$

16. $y = -(x - 5)^2 + 3$



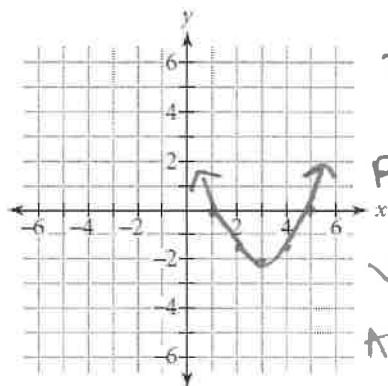
$D: x \in (-\infty, \infty)$

$R: y \in (-\infty, 3]$

$V: (5, 3)$

$AOS: x = 5$

17. $y = \frac{1}{2}(x - 3)^2 - 2$



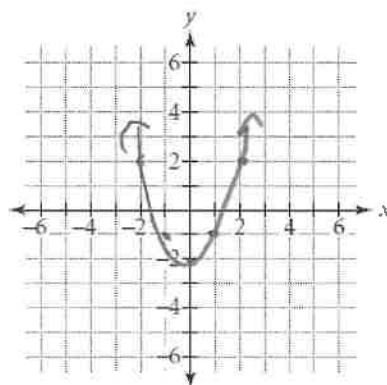
$D: x \in (-\infty, \infty)$

$R: y \in [-2, \infty)$

$V: (3, -2)$

$AOS: x = 3$

18. $y = x^2 - 2$



$D: x \in (-\infty, \infty)$

$R: y \in [-2, \infty)$

$V: (0, -2)$

$AOS: x = 0$