NAME_____**DATE**_____**PER.**_____

TRANSFORMATIONS OF QUADRATIC FUNCTIONS – Day 4

If $f(x) = x^2$, write the equation of the new function, g(x), under each of the following transformations.

1) Shift f(x) left 4 units

g(x) = _____

Which function is equivalent to g(x)?

A. $h(x) = x^2 + 4$
B. $h(x) = x^2 - 16$
C. $h(x) = x^2 - 8x + 16$
D. $h(x) = x^2 + 8x + 16$

2) Shift up 2 units, and right 6 units

g(x) = _____

Which function is equivalent to g(x)?

A. $h(x) = -x^2 - 34$
B. $h(x) = -x^2 - 12x - 34$
C. $h(x) = x^2 - 12x + 36$
D. $h(x) = x^2 - 12x + 38$

3) Shift the vertex of f(x) to (5, 0)

g(x) = _____

Which function is equivalent to g(x)?

A. $h(x) = x^2 + 22$
B. $h(x) = x^2 - 10x + 22$
C. $h(x) = x^2 - 10x + 25$
D. $h(x) = x^2 - 10x - 25$

4) Translate the line of symmetry right 4 units and compress f(x) by a factor $\frac{1}{2}$.

g(x) = _____

Which function is equivalent to g(x)?

A. $h(x) = \frac{1}{2}x^2 - 16$
B. $h(x) = \frac{1}{2}x^2 - 8x + 16$
C. $h(x) = \frac{1}{2}x^2 - 4x + 8$
D. $h(x) = \frac{1}{2}x^2 + 8$

For each of the following, determine the vertex, the axis of symmetry, the maximum or minimum value, and the domain and range.

5) $y = -(x - 1.5)^2 + 5$

Vertex:_____

Axis of symmetry: _____

Max or min value: _____

D: _____ R: _____

6) $y = 3(x + 1)^2 - 4$

Vertex:_____

Axis of symmetry: _____

Max or min value: _____

D: _____ R: _____

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

Vertex:_____

Axis of symmetry: _____

Max or min value: _____

D: _____ R: _____

8) $y = 2x^2 + 6$

Vertex:_____

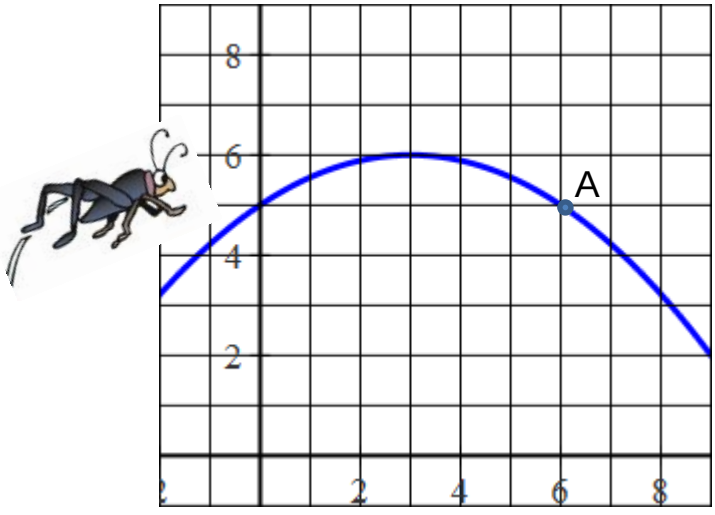
Axis of symmetry: _____

Max or min value: _____

D: _____ R: _____

Answer the following.

9) The picture shows the jump of a cricket.



Vertex:_____

Point A: _____

What quadratic function models the path of the cricket?

A. $h(t) = -\frac{1}{9}(x - 6)^2 + 5$

B. $h(t) = -\frac{1}{9}(x - 3)^2 + 6$

C. $h(t) = -9(x + 3)^2 + 6$

D. $h(t) = -\frac{1}{3}(x - 3)^2 + 5$