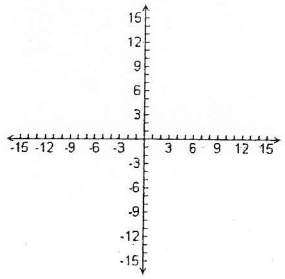
APPLY THE MATH: Graphing Quadratic Functions

ID: 9406

1. The vertex form of a parabola is _____.
2. The coefficient ____ determines whether the parabola opens upward or downward, and how wide the parabola is. The vertex of the parabola is the point with coordinates _____. The equation of the axis of symmetry is $x =$ _____.
3. The standard form of a parabola is _____.
4. The x-coordinate of the vertex is _____. The equation of the axis of symmetry is $x =$ _____. The y-intercept is _____.

Sketch the graph of each function. Identify the vertex and the equation of the axis of symmetry. Then check your graphs with your calculator.

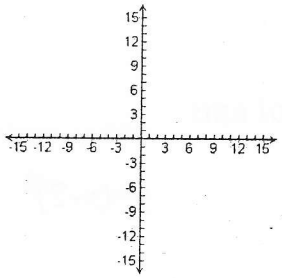
5. $y = x^2 + 4$



vertex _____

axis of symmetry _____

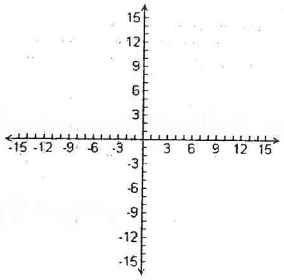
6. $y = (x-3)^2 + 5$



vertex _____

axis of symmetry _____

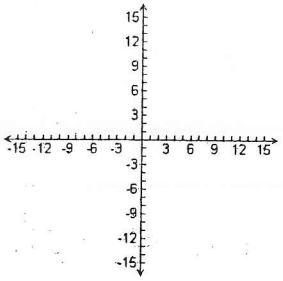
7. $y = -(x-2)^2$



vertex _____

axis of symmetry _____

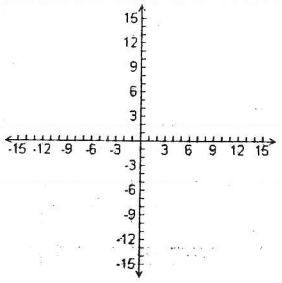
8. $y = x^2 + 6x + 9$



vertex _____

axis of symmetry _____

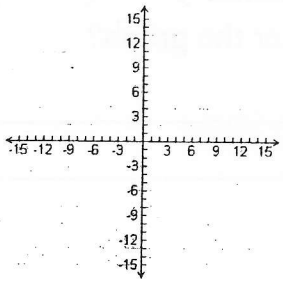
9. $y = -3x^2 + 6x + 1$



vertex _____

axis of symmetry _____

10. $y = x^2 + 1$



vertex _____

axis of symmetry _____

Translations of the form $y = a(x-h)^2 + k$

Graph the following on a single set of axis

$y=x^2$ $y=2x^2$

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

Graph the following on a single set of axis

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

$y= -x^2+2$

Graph the following on a single set of axis

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

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

In the equation $y = a(x-h)^2 + k$ how do the constants A, h, k alter the graph?

a=_____

_____

h=_____

_____

k=_____

_____