

1. A quadratic function has two real roots. How many times does it cross the x-axis?
2. If the graph of the equation  $y = x^2 + 1$  is translated 3 units down, what will be the equation of the new graph?
  - F  $y = (x - 3)^2 + 1$
  - G  $y = x^2 - 2$
  - H  $y = x^2 + 4$
  - J  $y = -3x^2 + 1$
3. What are the factors of  $x^2 + 8x + 12$  ?
4. What are the factors of  $4x^2 - 49$ ?
5. What are the factors of  $2x^2 + 3x - 5$  ?
6. Write this quadratic in vertex form:  $f(x) = -3x^2 - 18x - 20$
7. Write this quadratic in vertex form:  $f(x) = 2x^2 - 4x - 7$
8. Write this quadratic in vertex form:  $f(x) = x^2 + 8x + 15$
9. Circle the correct answer : When a parabola opens (upward/downward), the vertex is considered a maximum. The value of the (  $x$  )/(  $y$  ) in the ordered pair of the vertex is what is considered the maximum value.
10. Circle the correct answer: When a parabola opens (upward/downward), the vertex is considered a minimum. The value of the (  $x$  )/(  $y$  ) in the ordered pair of the vertex is what is considered the minimum value.