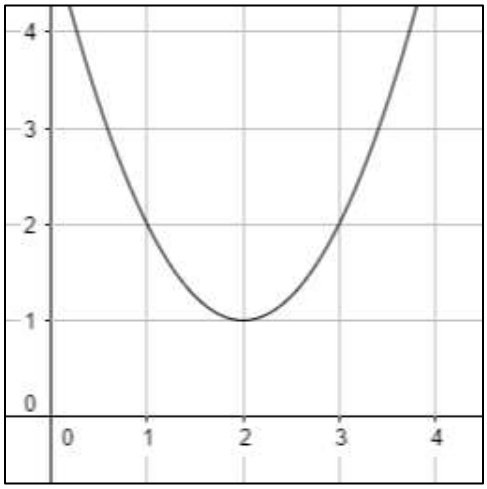
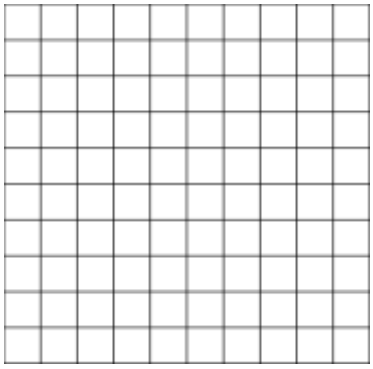
Name: _____ Period: _____ Date: _____

# Unit 9 – Quadratic Functions & Their Properties Review Guide

**1. Identify the vertex of the graph. Also, tell whether the vertex is a minimum or a maximum.**




**2. Graph the quadratic function $y = -1.5x^2$.**



**3. Identify the domain and range of the function $y = x^2 - 3$.**

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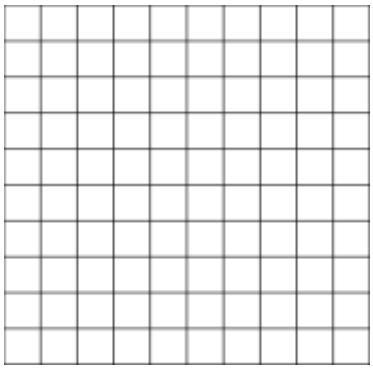
**4. The line that divides the parabola into parts that are mirror images of each other is known as an:**

**a. Axis of symmetry**
**b. Vertex**
**c. Minimum**
**d. Maximum**

**5. Identify the axis of symmetry and vertex of the graph of the quadratic function $f(x) = x^2 - 8x$.**

**6. Graph the function using the vertex and axis of symmetry.**

$$f(x) = x^2 + 4x - 2$$



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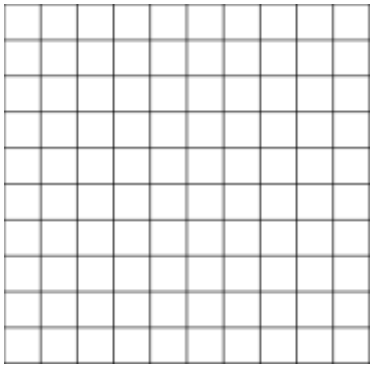
**7. The point where the graph of the quadratic function intersects with axis of symmetry is known as:**

**a. Center**
**b. Vertex**
**c. Minimum**
**d. Maximum**

**8. Find the solution of the equation $x^2 + 2 = 0$ by graphing the related function or mention if the equation has no solution.**



**9. Find the solution of the equation $4b^2 - 36 = 0$ by finding the square roots or mention if the equation has no solution.**

**10. If the graph of the quadratic function does not intersect the x-axis, the equation has:**

**a. 1 solution**
**b. 0 solution**
**c. 2 solutions**
**d. None of these**

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**11. Solve the equation $y(3y + 12) = 0$**

**12. Solve the equation $x^2 + 11x + 28 = 0$ by factoring.**

**13. The solution of $x^2 - 9x - 36 = 0$ is:**

a. $x = 4, -9$
**b.** $x = 4, 9$
**c.** $x = 3, -9$
**d.** $x = -12, 3$

**14. Find the value of $c$ which will make the expression a perfect-square trinomial.**

$x^2 + 18x + c$

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**15. Solve the equation by completing the square.**

$z^2 - 18z = 63$

**16. To complete the square in $x^2 - \frac{1}{2}x$ we will add:**

a. $\frac{1}{4}$
b. $\frac{1}{16}$
c. $\frac{1}{8}$
**d. 8**

**17. Evaluate the discriminant of the equation and tell how many solutions the equation has and are the solutions real or imaginary.**

$y = 4x^2 - 4x + 1$

**18. The quadratic equation has real solutions if:**

a. $b^2 - 4ac < 0$
b. $b^2 - 4ac = 0$
c. $b^2 - 4ac > 0$
**d.** None of these

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**19. Solve the quadratic equation using the quadratic formula.**

$x^2 + 9x - 13 = 0$

**20. Graph the set of points and determine which model best represents the data set.**

**(-1,-1), (-2,-2), (-3,-3), (-4,-4)**

**21. The graph of the equation $y = e^x$ is a/an:**

a. **Straight line**
b. **U-shaped curve**
c. **Increasing curve**
d. **None of these**

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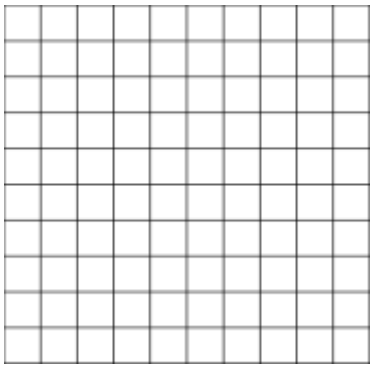
**22. Which model best describes the data in each table given below?**

| x | y |
|---|---|
| -2 | 12 |
| -1 | 6 |
| 0 | 3 |
| 1 | 1.5 |
| 2 | 0.75 |

**23. Solve the system of equations by graphing.**

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



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**24. Solve the system of equation algebraically.**

$y = x^2 - 3x - 27$ ; $y = x - 6$

**25. If the graphs of linear and quadratic function do not intersect each other, then the system of equation has:**

**a. 2 solutions**
**b. 1 solution**
**c. 0 solutions**
**d. None of these**