Graphing Quadratics from Standard Form Worksheet

Name: _____ Date: _____

Directions

For each quadratic, identify the axis of symmetry, vertex, y-intercept, and opening direction. Then make a table of values and graph the parabola.

A. Identify Key Features

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1. $y = x^2 + 4x + 3$
   Axis: _____ Vertex: _____ y-intercept: _____ Opens: _____
2. $y = x^2 - 6x + 5$
   Axis: _____ Vertex: _____ y-intercept: _____ Opens: _____
3. $y = x^2 + 2x - 8$
   Axis: _____ Vertex: _____ y-intercept: _____ Opens: _____
4. $y = -x^2 + 4x + 5$
   Axis: _____ Vertex: _____ y-intercept: _____ Opens: _____
5. $y = 2x^2 - 8x + 6$
   Axis: _____ Vertex: _____ y-intercept: _____ Opens: _____

B. Complete the Table and Graph

6. $y = x^2 - 2x - 3$

x	-1	0	1	2	3
y	___	___	___	___	___

7. $y = -x^2 + 2x + 3$

x	-1	0	1	2	3
y	___	___	___	___	___

8. $y = 2x^2 + 4x - 6$

x	-3	-2	-1	0	1
y	___	___	___	___	___

C. Analyze the Graph

9. For $y = x^2 - 8x + 12$, find the vertex and axis of symmetry.
10. For $y = -x^2 - 4x + 5$, state whether the parabola opens upward or downward.
11. For $y = 3x^2 - 6x - 9$, find the vertex and y-intercept.
12. Explain how the value of a in $y = ax^2 + bx + c$ affects the direction and width of a parabola.