

Algebra 2
Completing the Square and Finding Equations

Name: _____
Period: _____

Rewrite in vertex form by completing the square.

1. $f(x) = x^2 - 15x + \frac{3}{2}$ 2. $f(x) = 3x^2 + 6x - 24$ 3. $f(x) = 2x^2 - 16x - 18$ 4. $f(x) = 2x^2 + 16x + 3$

Solve by completing the square.

5. $x^2 + 10 = -15x$ 6. $3x^2 - 6x + 3 = 0$ 7. $2x^2 + 8x - 3 = 0$ 8. $3x^2 - 9x = 10$

Given the vertex and a point, find the equation of the quadratic function in all three forms.

9. V $(-2, -36)$, point $(0, -32)$ 10. V $(3, -16)$, point $(-1, 0)$ 11. V $(3, -36)$, point $(-2, -11)$

Given the roots and a point, find the equation of the quadratic function in all three forms.

12. roots $x = -4$, $x = 1$, point $(3, 28)$ 13. roots $x = -2$, $x = -5$, point $(-7, -15)$

14. roots $x = \frac{1}{2}$, $x = 6$, point $(2, -36)$

15. Sketch a complete graph of #10. 16. Sketch a complete graph of #12

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15. Sketch a complete graph of #10. 16. Sketch a complete graph of #12

12. $a=2$
13. $a=-1.5$
14. $a=3$