

Name _____

Period _____

Things We Know About the Equations of Parabolas

Find the coordinates of the vertex from the vertex form equation, $f(x) = a(x - h)^2 + k$.

Remember, h is the x-coordinate and k is the y-coordinate.

1) $f(x) = 3(x + 2)^2 + 1$ 2) $y = -2(x - 4)^2 + 3$ 3) $f(x) = -0.3(x - 2.7)^2 - 11.4$

Find the coordinates of the vertex from the standard form equation, $f(x) = ax^2 + bx + c$. Remember, you can find the x-coordinate with $-\frac{b}{2a}$ and the y-coordinate by plugging in the x-coordinate.

Ex 1) $f(x) = 3x^2 - 6x + 7$ 4) $f(x) = -x^2 + 8x - 4$ 5) $y = x^2 + 8x - 11$

6) $y = 5x^2 - 10x + 1$ 7) $f(x) = 3x^2 - 6x + 7$ 8) $f(x) = 4x^2 + 8$

Find the coordinates of the vertex from the factored form equation, $f(x) = a(x - r_1)(x - r_2)$.

Remember, you can find the x-coordinate with $\frac{r_1 + r_2}{2}$ (x's lie!) and the y-coordinate by plugging in that x-coordinate.

Ex 2) $y = -2(x - 3)(x + 1)$ 9) $y = 5(x + 2)(x + 4)$ 10) $f(x) = -(x - 7)(x - 3)$

11) $f(x) = 2x(x + 6)$ 12) $y = (x + 5)(x - 5)$ 13) $f(x) = -4(x - 3)^2$

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Identify whether the given equation is in standard form or factored form. Then write the vertex form of the equation. Remember, you can write a vertex form equation as long as you know a (which is the same in any form) and the coordinates of the vertex.

Ex.) $y = -2x^2 - 8x + 3$

14) $y = 3x^2 + 6x + 2$

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

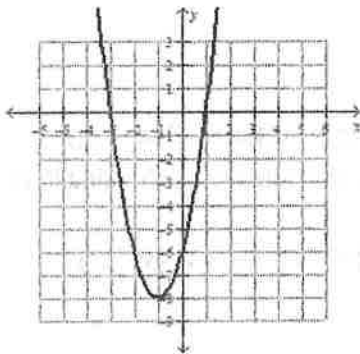
16) $f(x) = -3x(x - 4)$

17) $f(x) = 4x^2 - 24x$

18) $y = (x - 7)(x + 5)$

Write the vertex and factored form of the equation for each graph. Remember, the vertex can help you write the vertex form and the x-intercepts can help you write the factored form. To find a , figure out how much the graph goes up when you go over one step.

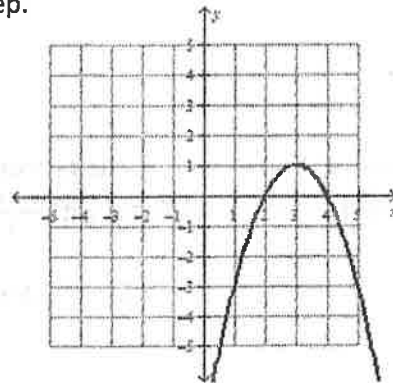
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V: _____

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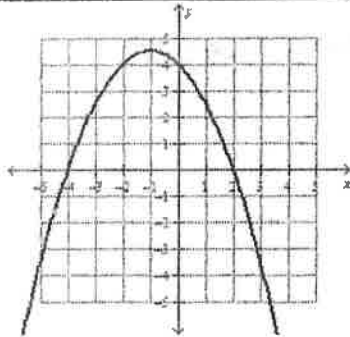
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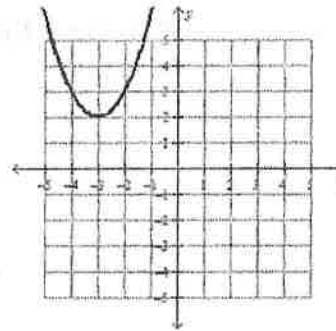
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V: _____

F: _____

22)



V: _____

F: _____