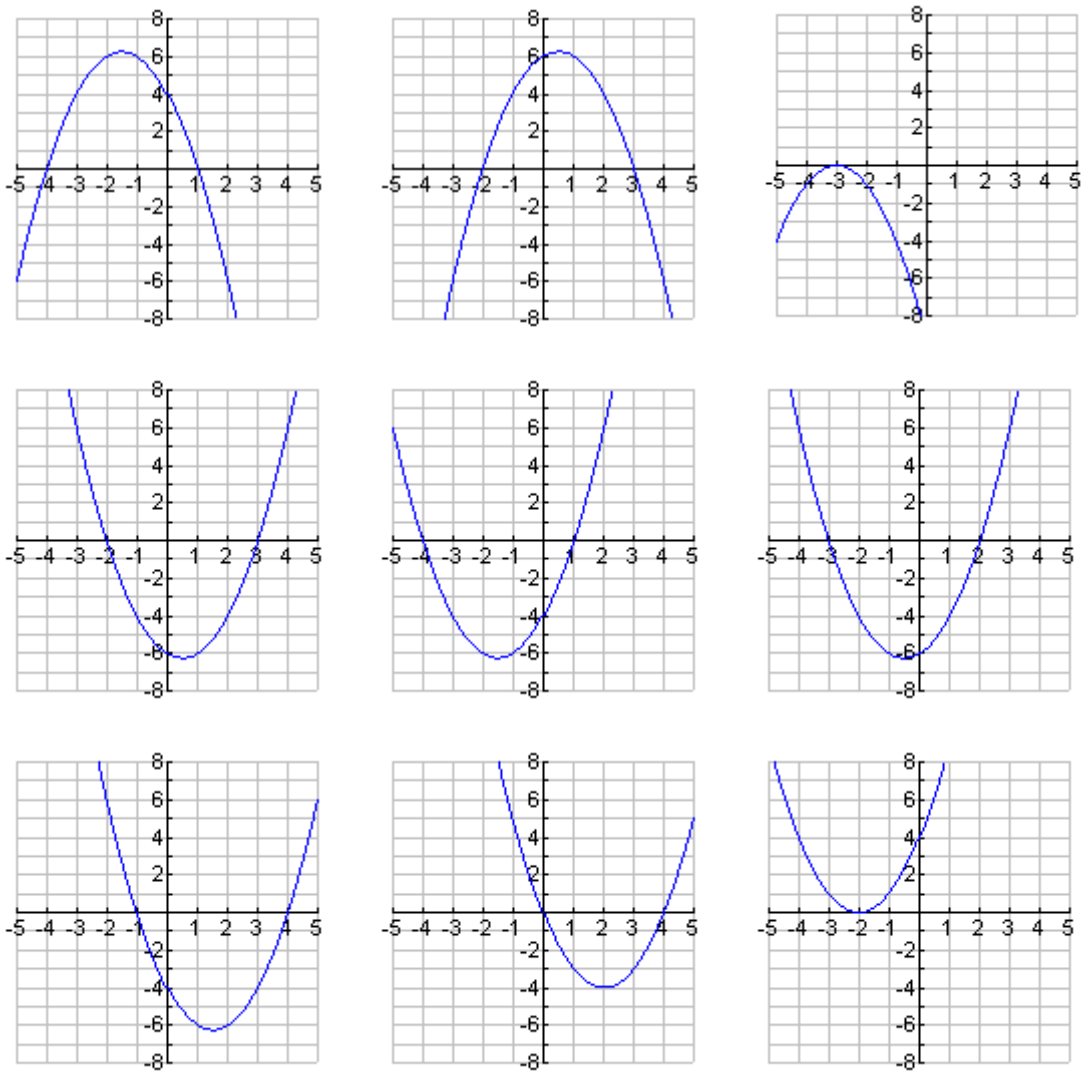
Name: _____Date: _____ #73 Graphing from Intercept form

Part A: Match each graph to its equation. Write the number of the problem on the graph that it matches. Not all equations will be used.

1. A(x)=-(x+2)(x-3)
2. $f(x)=(x-2)(x+3)$
3. $g(x)=(x-3)(x+2)$
4. $h(x)=(x-4)(x+1)$
5. $k(x)=(x-1)(x+4)$
6. $t(x)=-(x-1)(x+4)$
7. B(x)=(x-1)(x-4)
8. D(x)=-(x-1)(x-4)
9. C(x)=x(x-4)
10. J(x)=(x+2)(x+2)
11. M(x)=-(x+3)(x+3)
12. P(x)=(x+4)(x+1)



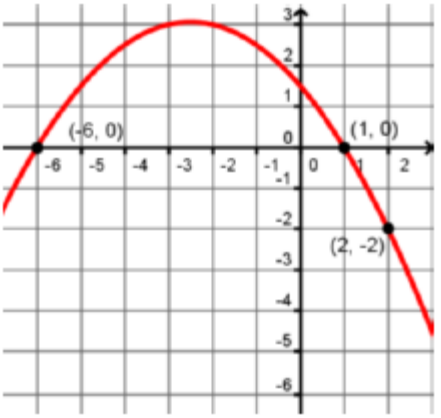
Part B. Sketch each of the following functions on your own paper. **On that paper show all work to find <u>the axis of symmetry</u>, <u>vertex,</u> and <u>y intercept</u> (also known as f(0)).**
On this page, multiply the binomials (review skill).

13. $f(x)=(x-5)(x+1)$

14. $g(x)=\frac{1}{4}(x+2)(x+10)$

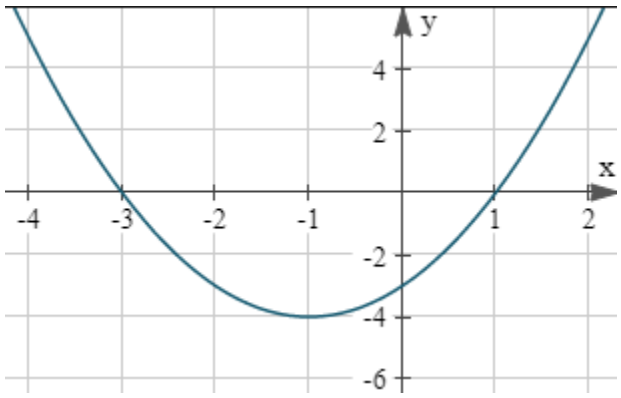
Part C. Write the equation of each parabola in intercept form. The first one is done for you.

This parabola has intercepts (-6, 0) and (1, 0) and goes through (2, -2)



$$f(x) = a\,(x+6)(x-1)$$
$$-2 = a\,(2+6)(2-1)$$
$$-2 = a\,(8)(1)$$
$$\frac{-2}{8} = \frac{8a}{8}$$
$$-\frac{1}{4} = a$$
$$f(x) = -\frac{1}{4}(x+6)(x-1)$$

15.



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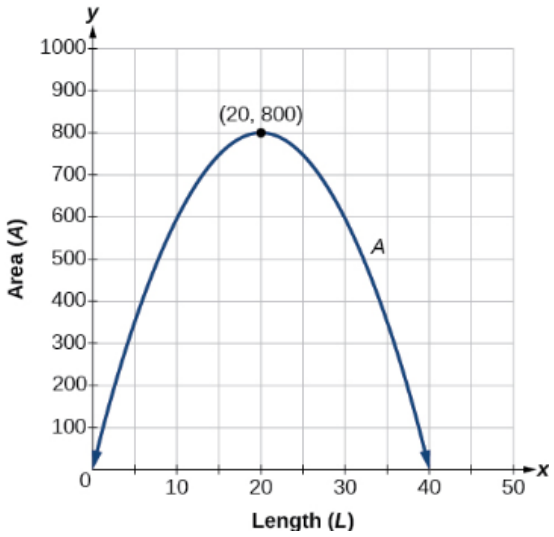

Name: _____Date: _____ #74 Solving from vertex form

1. Explain why you cannot just always say it is the opposite of the number after x in the parenthesis.

2. Explain why you can only use this method to find x intercepts instead of the intersection of a constant function and the parabola. [For example, why can't you solve $5 = (x+2)(x - 7)$]

Do the work for the rest on your own paper!
Solve each quadratic below. Then, give the number and type of solutions, its domain, range, and axis of symmetry.

3. $f(x) = (5x + 3)(x - 5)$

4. $g(x) = \frac{1}{2}(x - 2)(x - 6)$

5. $H(x) = -3(2x + 1)(2x - 11)$

6. $F(x) = -1/4(x - 4)(x - 8)$

7. $R(x) = (5x - 6)(x + 6)$

8. $F(x)=4x(x - 8)$

9. $G(x)= -3(2x - 3)(2x + 5)$

10. $H(t) = 1/2t(t - 4)$

11. Looking back at your answers to number and type of solutions on 3-10, explain why not all quadratics an be written in intercept form.

Name: _____Date: _____ #75 Applications in vertex form

Remember to indicate which point(s) you need in order to answer each question. Then, answer the question.

1. A flea's jump can be modeled by the function *h(d)= -0.073d(d-33)* where d is the horizontal distance in centimeters and h is the corresponding height in centimeters.

a) How far can a flea jump?

b) Mr. Magoo started a flea circus and set up a high bar jump that is 15 centimeters off the ground. Can the flea make it over the high bar? Explain.

c) How long is the flea in the air?

2. A wolf leaps out of the bushes and takes a hunter by surprise. Its trajectory can be mapped by the equation $h(d) = -\frac{1}{5}(d - 1)(d - 11)$, where h (height) and d (distance) are measured in feet.

   a) How high did the wolf jump?

   b) If the hunter was originally 20 feet from the bushes, how far is he from the wolf after it lands?

3. A rock is thrown from the top of a tall building. The distance, in feet, between the rock and the ground t seconds after it is thrown is given by $h(t) = -16(5t - 26)(5t + 23)$.

a) How tall was the building that the rock was thrown off?

b) When did the rock hit the ground?

c) When did the rock reach its highest point?

Name: _____ Date: _____ #76 Factoring Binomials

1. Factor each of the following

a. 6y – 15 b. 5a – 30 c. 6a – 2b

a. -8w + 20z e. -2x + 6y f. 4k – 9k

g. 10a – 13a h. $3x^2 + 12x$ i. $5x^4 + 25x^2$

2. Turn each standard form quadratic into its intercept form

a. $f(x) = 2x^2 - 10x$ b. $g(x) = -8x^2 + 16x$

c. $h(x) = \frac{1}{5}x^2 - 3x$ d. $j(x) = -4x^2 - 24$

3. Solve each quadratic by factoring.

a. $f(x) = -3x^2 - 15x$ b. $g(x) = 6x^2 + 10x$

Name: _____ Date: _____ #80 Factoring a = 1 trinomials

DO THE FOLLOWING ON YOUR OWN PAPER!

Turn each standard form quadratic into intercept form by factoring. Then solve the quadratic (Some of these are review problems.

1. $f(x) = x^2 + 9x$

2. $g(x) = x^2 + 11x + 10$

3. $h(x) = x^2 + 14x + 48$

4. $j(x) = h^2 + 5h$

5. $h(t) = t^2 + 10\,t - 200$

6. $d(t) = 3t^2 + 6t$

7. $h(d) = d^2 + 13d + 22$

8. $P(g) = g^2 + 9g + 14$

9. $f(x) = x^2 - 9x + 18$

10. $h(x) = x^2 + 5x + 4$

11. $h(x) = x^2 - 5x + 4$

12. $m(x) = x^2 - 64$

For each of the following below, tell what you are actually finding (it is not x-intercepts since they do not equal zero.) Then solve each quadratic. **(Remember: one side must equal zero before it can be solved by factoring**). Remember, if factoring isn't going well, you can still solve using the quadratic formula or completing the square, but solving by factoring SHOULD BE the easier way.)

13) $x^2 = 11x - 28$

14) $k^2 + 15k = -56$

15) $x^2 + 17x + 49 = 3x$

16) $m^2 = 2m$

Preview Algebra II: Simplify each of the following;

17. $\frac{x^2-7x-8}{x^2-5x-24}$

18. $\frac{x^2+3x-10}{x^2+2x-8}$

Name: _____ Date: _____ #81 All Factoring

Solve each equation by factoring on your own paper. (Remember, it must equal 0 before you can solve it)

7) $n^2 - 10n + 22 = -2$

8) $n^2 + 3n - 12 = 6$

9) $6n^2 - 18n - 18 = 6$

10) $7r^2 - 14r = -7$

11) $n^2 + 8n = -15$

12) $5r^2 - 44r + 120 = -30 + 11r$

13) $-4k^2 - 8k - 3 = -3 - 5k^2$

14) $b^2 + 5b - 35 = 3b$

15) $3r^2 - 16r - 7 = 5$

16) $6b^2 - 13b + 3 = -3$

17) $7k^2 - 6k + 3 = 3$

18) $35k^2 - 22k + 7 = 4$

19) $7x^2 + 2x = 0$

20) $10b^2 = 27b - 18$

Name: _____ Date: _____ #82 Difference of Squares

Factor each completely

1) $a^2 - 49$

2) $a^2 - 64$

3) $p^2 - 144$

4) $b^2 - 25$

15) $9b^2 - 25$

16) $1 - a^2$

17) $16r^2 - 25$

18) $m^2 - 9$

19) $25m^2 - 9$

20) $16v^2 - 9$

25) $144x^2 - 25y^2$

26) $25u^2 - v^2$