Alg2T Warm Up Ch 4 Day 2

One side of a right triangle is $(4n-2)$ feet long and the side perpendicular to it is $(2n+4)$ feet long. Which of the following expressions must represent the area, in square feet, of the triangle?

A. $4n-4$
B. $4n^2-4$
C. $4n^2+6n-4$
D. $4n^2+10n-4$
E. $4n^2+12n-8$

$$\frac{(4n-2)(2n+4)}{2}$$

If $6x^2-x-a=(ax+1)(3x-2)$, what is the value of a?

F. -2
G. -1
H. 2
J. 3
K. 6

$3ax^2-2ax+3x-2$

$3ax^2$

$$\frac{8n^2+16n-4n-8}{2}$$

$$\frac{8n^2+12n-8}{2}$$

Quiz Quiz Trade

$5x^2+19x+12$

60

4 15

19

$(5x^2+15x)(4x+12)$

60

30

2 15

4

$5x(x+3)+4(x+3)$

$(5x+4)(x+3)$

What is a monomial?

$1x$ 3 $2x^2$

Binomial?

$16x^2 - 25$

Trinomial?

$2x^2 + 3x + 6$

2 / 3

Examples:

1) $3x^2 - 6x$

$(3x)(x-2)$

2) $8x^2 + 4x$

$4x(2x+1)$

Homework Questions??

4.) $(3n+4)(n+1)$
6.) $(3p+1)(2p+1)$
8.) $(5x-4)(3x+2)$
10.) $(7m-3)(2m+1)$
12.) D
14.) $(2r+5)(2r-5)$
16.) $(4s+1)^2$
18.) $(8w+9)^2$
20.) $(5t-3)^2$
22.) $4(3x+5)(x-2)$
24.) $2(4v-1)(4v+1)$
26.) $3(2m-3)^2$
28.) $7(3x+1)(x-4)$
30.) $-4(2y^2-7y+15)$

*Factoring Activity

*Blue Triangles

Algebra 2 Trig Daily Learning Target Quiz
Factoring Day 2

1.) Factor. $f(x) = x^2 - 10x + 24$	2.) Factor. $f(x) = x^2 + x - 72$
3.) Factor $f(x) = 4x^2 - 9$	4.) Factor $f(x) = 2x^2 + 3x + 1$

Alg2T Extra Credit Ch 4 Day 2

13. By factoring the left side, the quadratic equation $2t^2 + Kt + 12 = 0$ can be written as $(t-4)(2t - 3) = 0$. What must be the value of K?

F. -11
G. -8
H. -4
J. -3
K. -2

Chapter 4
Quadratic Functions
(4.4/4.5)Solve by factoring and by square roots

Quadratic Equation

Standard Form $ax^2+bx+c=0$

KEY CONCEPT *For Your Notebook*

Zero Product Property

Words	If the product of two expressions is zero, then one or both of the expressions equal zero.
Algebra	If A and B are expressions and $AB = 0$, then $A = 0$ or $B = 0$.
Example	If $(x + 5)(x + 2) = 0$, then $x + 5 = 0$ or $x + 2 = 0$. That is, $x = -5$ or $x = -2$.

$(x+5)(x+2)=0$

$x+5=0$ $\quad x+2=0$ solutions

$x=-5$ $\quad x=-2$

I. Use factoring to solve.

Example

1.) $x^2 - x - 6 = 0$

A M

$(x-3)(x+2) = 0$

$x-3=0 \quad x+2=0$

$x=3 \quad x=-2$

Let's take a look using our graphing Calculators...

I. Use factoring to solve.

Example

2.) $x^2 - x = 42$

$ax^2+bx+c=0$

-42

$x^2 - 1x - 42 = 0$ (A = −42, M = −1)

$(x-7)(x+6)=0$

$x=7 \quad x=-6$

I. Use factoring to solve.

Example

3.) $16x^2 = 8x$

$-8x \quad -8x$

$16x^2 - 8x = 0$

$8x(2x-1) = 0$

$\frac{8x}{8} = \frac{0}{8}$ $\qquad$ $2x - 1 = 0$

$+1 \quad +1$

$\frac{2x}{2} = \frac{1}{2}$

$x = 0$

$x = \frac{1}{2}$

I. Use factoring to solve.

Example

4.) $3x^2 - 8x = -x - 2$

$+x+2+x \quad +2$

$3x^2 - 7x + 2 = 0$

$(3x^2 - 6x)(-1x + 2) = 0$

$3x(x-2) - 1(x-2) = 0$

$(x-2)(3x-1) = 0$

$x - 2 = 0$

$x = 2$

$3x - 1 = 0$

$x = \frac{1}{3}$

a: 1

6

-6 -1

-1 6

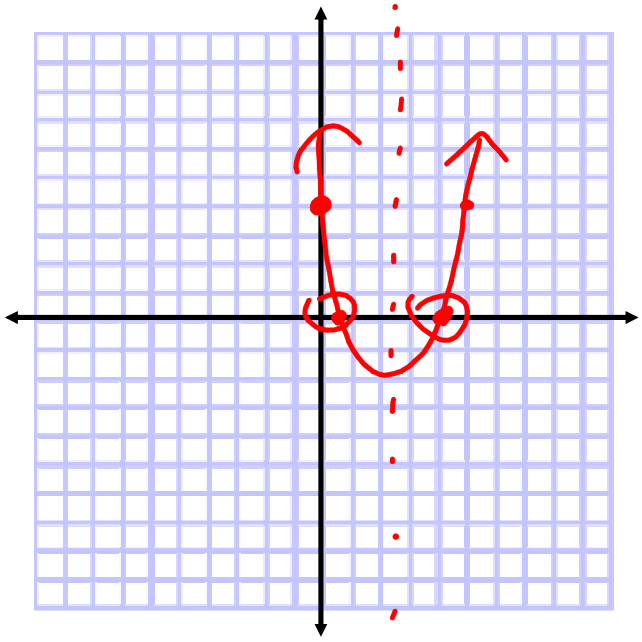
-7

Use factoring to solve.

Example

5.) $4x^2 = -4x - 1$

II. Put me in intercept form and graph.



Example

$$y = 2x^2 - 9x + 4$$

a·c: 8

-1 and -8

-9

$(2x^2 - 1x - 8x + 4)$

$1x(2x-1) - 4(2x-1)$

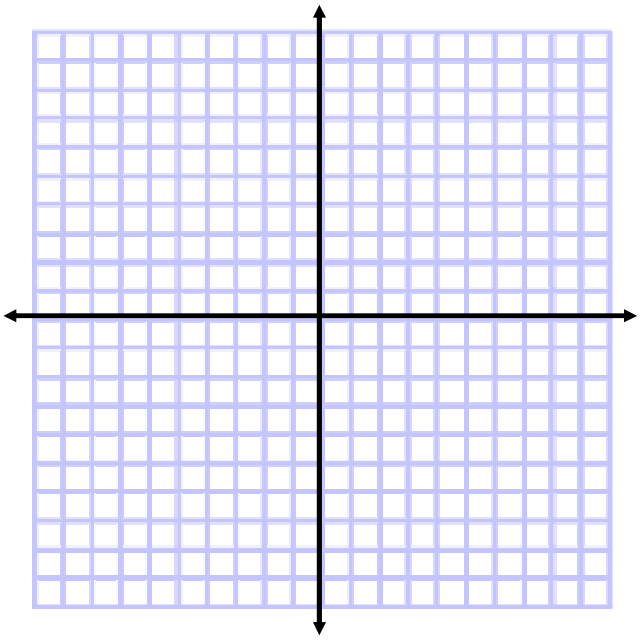
$y = (x-4)(2x-1)$

$x - 4 = 0$ $\quad 2x - 1 = 0$

$x = 4$ $\quad x = \frac{1}{2}$

II. Put me in intercept form and graph.

Example



$$y = 3x^2 - 9x + 6$$

Solving Practice

Worksheet -What is the title of this picture? (15 minutes)

KEY CONCEPT *For Your Notebook*

Properties of Square Roots ($a > 0, b > 0$)

Product Property $\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$ **Example** $\sqrt{18} = \sqrt{9} \cdot \sqrt{2} = 3\sqrt{2}$

Quotient Property $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$ **Example** $\sqrt{\frac{2}{25}} = \frac{\sqrt{2}}{\sqrt{25}} = \frac{\sqrt{2}}{5}$

$\frac{\sqrt{2}}{\sqrt{25}} = \frac{\sqrt{2}}{5}$

$\sqrt{18}$

$\sqrt{9}\sqrt{2}$

$3\sqrt{2}$

$\frac{\sqrt{25}}{\sqrt{2}} = \frac{5}{\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}}$

$\frac{5\sqrt{2}}{\sqrt{4}}$ $\boxed{\frac{5\sqrt{2}}{2}}$

III. Solve by square roots.

Example

$\sqrt{x^2} = \sqrt{100}$

$x = \pm 10$

$x = 10 \quad x = -10$

III. Solve by square roots.

Example

$$2x^2+1=51$$

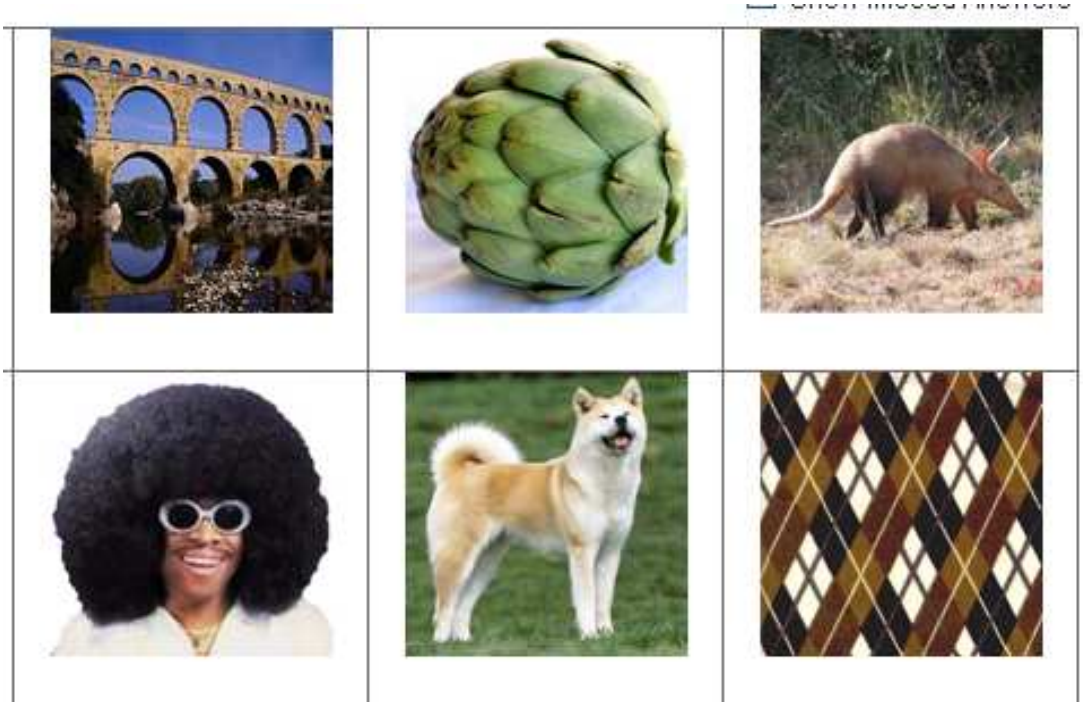
$-1 \quad -1$

$$\frac{2x^2}{2}=\frac{50}{2}$$

$$\sqrt{x^2}=\sqrt{25}$$

$$x=\pm 5$$

Things that start with A



III. Solve by square roots.

Example

$$\frac{3(x-4)^2}{3} = \frac{75}{3}$$

$$\sqrt{(x-4)^2} = \sqrt{25}$$

$x-4=5$ $\quad$ $x-4=-5$

$+4 \quad +4$ $\quad$ $+4 \quad +4$

$x=9$ $\quad$ $x=-1$

III. Solve by square roots.

Example

$$6x^2 + 15 = 123$$

$-15 \quad -15$

$$\frac{6x^2}{6} = \frac{108}{6}$$

$$\sqrt{x^2} = \pm\sqrt{18}$$

$$x = \pm\sqrt{18}$$

$$x = \pm\sqrt{9}\cdot\sqrt{2}$$

$$x = \pm 3\sqrt{2}$$

III. Solve by square roots.

Example

$$-\frac{x^2}{3}+4=-4$$

$$-4 \quad -4$$

$$3 \cdot -\frac{x^2}{3} = -8 \cdot 3$$

$$\frac{-1x^2}{-1} = \frac{-24}{-1}$$

$$\sqrt{x^2} = \sqrt{24}$$

$$x = \pm\sqrt{24}$$

$$x = \pm\sqrt{4}\cdot\sqrt{6}$$

$$x = \pm 2\sqrt{6}$$

III. Solve by square roots.

Example

$$2(x-4)^2 - 8 = 0$$

$+8 \quad +8$

$$\frac{2(x-4)^2}{2} = \frac{8}{2}$$

$$\sqrt{(x-4)^2} = \sqrt{4}$$

$x-4 = 2 \quad x-4 = -2$

$+4 \quad +4 \quad +4 \quad +4$

$x = 6 \quad x = 2$

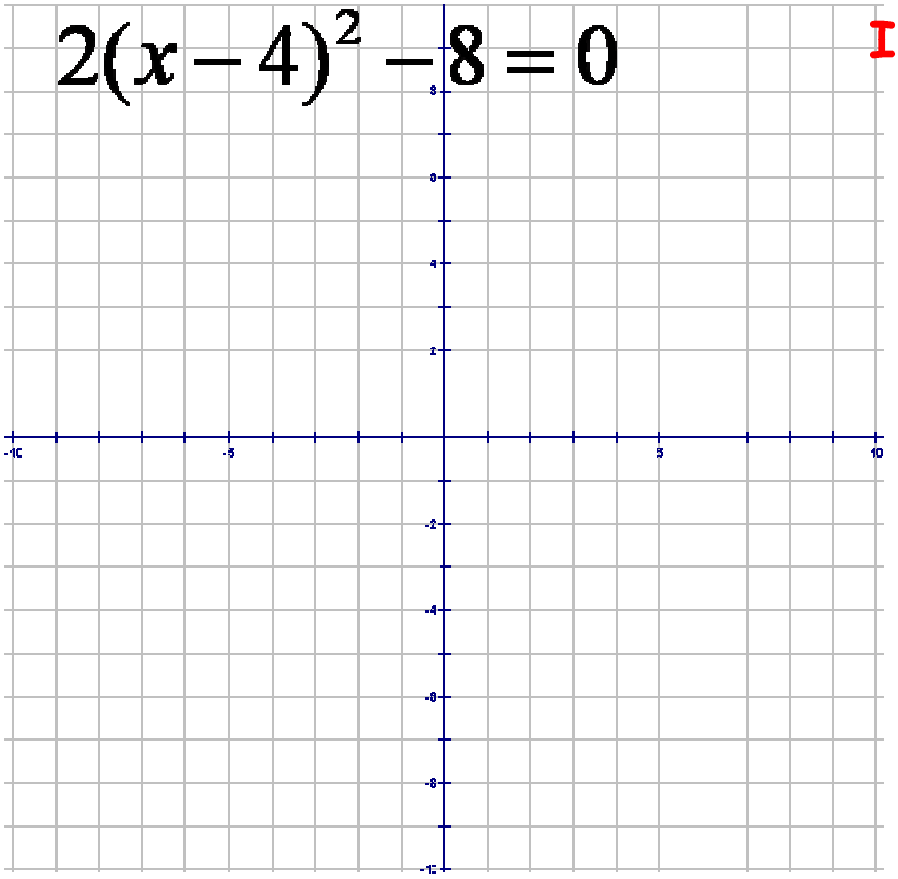
$$\sqrt{(x-4)^2} = \sqrt{3}$$

$x-4 = \sqrt{3} \quad x-4 = -\sqrt{3}$

$+4 \quad +4$

$x = 4+\sqrt{3} \quad x = 4-\sqrt{3}$

$$2(x-4)^2-8=0$$



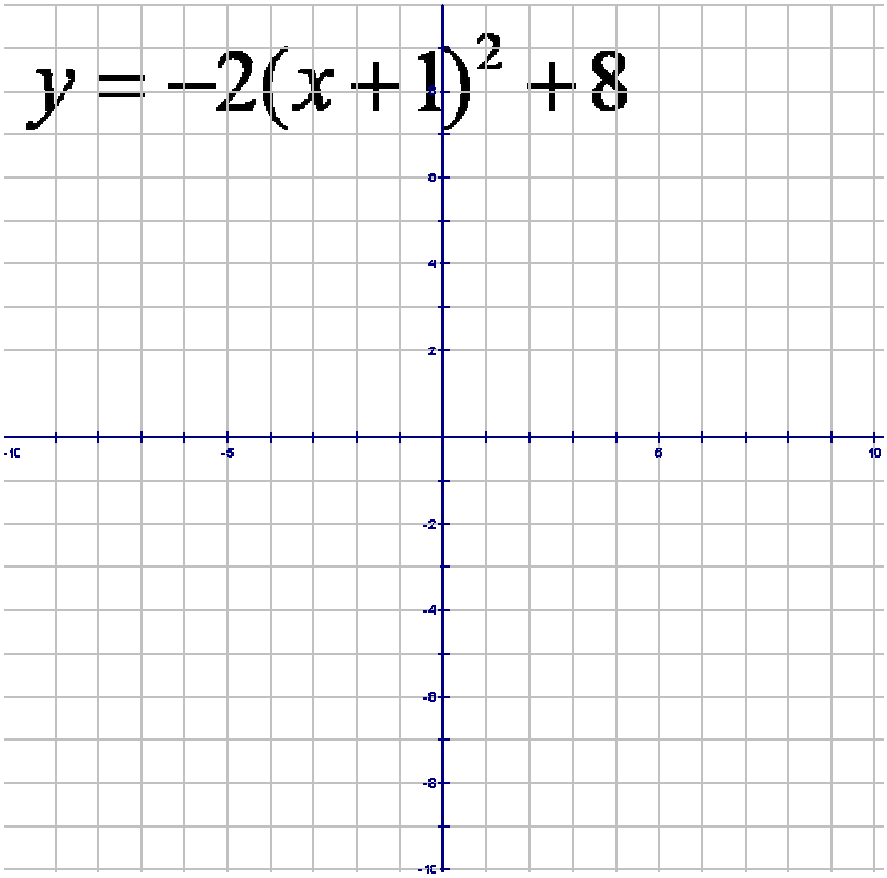
IV. So what does this all mean graphically?

$$-2(x+1)^2+8=0$$

Example

IV. X-intercepts?

$y = -2(x+1)^2 + 8$



And your homework: Chapter 4 Day 2

Finish WS