Warm UP

Solve

1) $x^2 + x - 30 = 0$

$(x+6)(x-5)$

$x = -6 \quad x = +5$

1	-30
1	.6
1	-5

$\dfrac{\begin{array}{c}6 \\ -5\end{array}}{1}$

$-x + 5 = 0$
$-5 - 5$
$\dfrac{-x}{-1} = \dfrac{-5}{-1}$
$x = 5$

2) $7x^2 - 36x + 5 = 0$

$(7x-1)(x-5) = 0$

7	5
-7	+1
-1	+5

$x - 5 = 0$

$\dfrac{\begin{array}{c}-35 \\ +1\end{array}}{-36}$

$x = 5$

$7x - 1 = 0$
$+1 +1$
$\dfrac{7x}{7} = \dfrac{1}{7}$
$x = \frac{1}{7}$

Put the following in simplest radical form

$$\sqrt[2]{20} = 2\sqrt{5} \qquad \sqrt{600}$$

10 ②

② 5

$$\frac{\sqrt{32}}{④2^8} = \frac{4\sqrt{2}}{2} = 2\sqrt{2}$$

④ 2

The Quadratic Formula

Content Objective: The student
recognizes the advantages of being able
to use the quadratic formula for any
quadratic equation.

Language Objective: Students will
communicate the quadratic formula by
singing a song and practicing
algorithmic procedures with a partner.
Student should also be able to
communicate using the following
vocabulary:
    Quadratic Formula
    roots
    solution
    zeros

Honors: Deriving the quadratic formula

Quadratic Formula - "Short Cut"

"Complete the square" of a general equation in
standard form to discover a "short cut"

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

$$x^2 + x - 30 = 0$$

$$a = 1 \quad b = 1 \quad c = -30$$

Quadratic Formula

$$x^2 + x - 30$$

$$a = 1 \quad b = 1 \quad c = -30$$

$$\boxed{\begin{array}{c} x = 5 \\ x = 6 \end{array}}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(1) \pm \sqrt{(1)^2 - 4(1)(-30)}}{2(1)}$$

$$x = \frac{-1 \pm 11}{2} \nearrow \quad \frac{-1+11}{2} \quad \frac{-1-11}{2}$$

$$\frac{10}{2} = 5 \quad \frac{-12}{2} = 6$$

Solve each equation using the Quadratic Formula
(equations on task)

1. $x^2 - 2x - 24 = 0$

$$X = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-24)}}{2(1)} = \frac{2 \pm 10}{2}$$

2. $3a^2 - 6a - 34 = 0$

   $a \quad b \quad c$

   $\frac{2 + 10}{2} \quad \frac{2 - 10}{2}$

   $6 \quad -4$

3. $4n^2 + 11n = 15$

   $a \quad b \quad c \; -15 \; -15$

   $4n^2 + 11n - 15 = 0$

Practice (simplify completely):

Solve for x.

$$x^2 - 10 = 0$$

$$a = 1 \quad b = 0 \quad C = -10$$

$$x = \frac{-(0) \pm \sqrt{(0)^2 - 4(1)(-10)}}{2(1)}$$

$$\frac{\pm \sqrt{40}}{2} = \frac{\pm 6.3}{2} = \boxed{\pm 3.15}$$

Solve for x.

$$3x^2 + 4x + 8 = 2x^2 + 7$$

$$\underline{-2x^2 \quad -7 \quad -2x^2 -7}$$

$$X^2 + 4x + 1 = 0$$

$$X = \frac{-4 \pm \sqrt{4^2 - 4(1)(1)}}{2(1)}$$

$$X = \frac{-4 \pm 3.5}{2} \qquad X = -0.3, -3.8$$