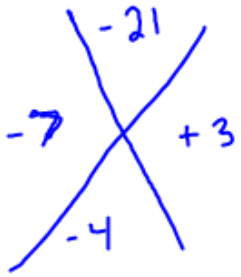
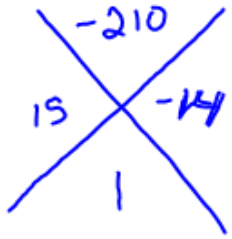
Factor the following quadratic expressions:

$x^2 - 4x - 21$ = $(x-7)(x+3)$



$10x^2 + x - 21$ = $(5x-7)(2x+3)$



$10x^2 + 15x \{ -14x - 21$

$5x(2x+3) \} -7(2x+3)$

Quadratics Practice

Find the x intercepts of the following quadratic equations by factoring:

$x^2+14x+24=0$

$(x+12)(x+2)=0$

$x+12=0$ $\quad$ $x+2=0$

$x=-12$ $\quad$ $x=-2$

$6x^2+7x-3=0$

$6x^2+9x-2x-3=0$

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

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

$3x-1=0$ $\quad$ $2x+3=0$

$+1\ +1$ $\quad$ $2x=-3$

$\frac{3x}{3}=\frac{1}{3}$ $\quad$ $\frac{2x}{2}=\frac{-3}{2}$

$x=\frac{1}{3}$ $\quad$ $x=-\frac{3}{2}$ or -1.5

Find the roots of the following quadratic equations by using the square root method:

$3x^2 - 12 = 36$

$+12 \quad +12$

$\frac{3x^2}{3} = \frac{48}{3}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

$2(x-4)^2 + 10 = 28$

$-10 \quad -10$

$\frac{2(x-4)^2}{2} = \frac{18}{2}$

$\sqrt{(x-4)^2} = \sqrt{9}$

$x - 4 = \pm 3$

$+4 \quad +4$

$x = 4 \pm 3$

$x = 7 \quad x = 1$

Solve the following quadratic equations by completing the square:

$x^2+6x+1=0$

$\frac{6}{2}=3$

$(3)^2=9$

$-1 \quad -1$

$x^2+6x+\underline{9}=-1+\underline{9}$

$\sqrt{(x+3)^2}=\sqrt{8}$

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

$-3 \quad -3$

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

$2x^2+8x-16=0$

$\frac{4}{2}=2$

$(2)^2=4$

$+16 \quad +16$

$2x^2+8x=16$

$2(x^2+4x+\underline{4})=16+\underline{8}$

$\frac{2(x+2)^2}{2}=\frac{24}{2}$

$\sqrt{(x+2)^2}=\sqrt{12}$

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

$-2 \quad -2$

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

Solve the following equations by using the quadratic formula:

$a = 3 \quad b = 10 \quad c = -12$

$$3x^2 + 10x - 12 = 0$$

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

$$\frac{-10 \pm \sqrt{10^2 - 4(3)(-12)}}{2(3)}$$

$$\frac{-10 \pm \sqrt{244}}{6} = \frac{-10 \pm 2\sqrt{61}}{6}$$

$$\frac{-10 - 2\sqrt{61}}{6} = \frac{-5 - \sqrt{61}}{3}$$

$$\frac{-10 + 2\sqrt{61}}{6} = \frac{-5 + \sqrt{61}}{3}$$

Practice with Quadratics

Quiz # 8