

HW: 8.7/5-8, 23-28, 55-60

Warm up:

Factor.

$$1) 25x^2 - 20x + 4$$
$$(5x - 2)^2$$

$$2) \underline{ax - 6a} + \underline{cx - 6c}$$

$$a(x-6) + c(x-6) = (x-6)(a+c)$$

$$3) bx + 2x - by - 2y$$

$$x(b+2) - y(b+2) = (b+2)(x-y)$$

$$xy = 6$$

$$x=2 \quad y=3$$

$$x=1.5 \quad y=4$$

$$x=6 \quad y=1$$

$$x=\frac{1}{2} \quad y=12$$

$$x=3 \quad y=2$$

$$x=\frac{1}{3} \quad y=18$$

$$x=1 \quad y=6$$

$$x=-3 \quad y=-2$$

$$x=-2 \quad y=-3$$

$$x=-6 \quad y=-1$$

$$x=-1 \quad y=-6$$

$$xy = 0$$

$$x = 0 \text{ or } y = 0$$

$$z^2 + z - 6 = 0$$

$$\underline{(z + 3)} \underline{(z - 2)} = 0$$

$$\begin{array}{r} z + 3 = 0 \\ -3 \quad -3 \\ \hline z = -3 \end{array} \quad \text{or} \quad \begin{array}{r} z - 2 = 0 \\ +2 \quad +2 \\ \hline z = 2 \end{array}$$

$$z = -3, 2$$

$$x^2 - 7x - 18 = 0$$

$$(x + 2)(x - 9) = 0$$

$$x = -2, 9$$

$$\begin{array}{l} x + 2 = 0 \\ x = -2 \end{array}$$

$$10x^2 + 29x - 21 = 0 \quad \begin{matrix} 1 & 2 \\ 3 & 7 \end{matrix}$$

$$(10x \quad \quad)(x \quad \quad) = 0$$

$$\underline{(5x - 3)(2x + 7)} = 0$$

$$\begin{array}{r} 5x - 3 = 0 \\ + 3 \quad + 3 \\ \hline 5x = 3 \\ \hline x = \frac{3}{5} \end{array}$$

$$\text{or } \begin{array}{r} 2x + 7 = 0 \\ - 7 \quad - 7 \\ \hline 2x = -7 \\ \hline x = -\frac{7}{2} \end{array}$$

$$x = -\frac{7}{2}, \frac{3}{5}$$

$$9x^2 + 30x + 25 = 0$$

$$(3x + 5)^2 = 0$$

$$\begin{array}{r} 3x + 5 = 0 \\ -5 \quad -5 \\ \hline 3x = -5 \\ \frac{3x}{3} = \frac{-5}{3} \\ x = -\frac{5}{3} \end{array}$$

$$\begin{array}{l} (3x + 5)(3x + 5) = 0 \\ 9\left(-\frac{5}{3}\right)^2 + 30\left(-\frac{5}{3}\right) + 25 \\ 9\left(\frac{25}{9}\right) + (-50) + 25 \\ 25 - 50 + 25 = 0 \checkmark \end{array}$$

$$\begin{array}{r} x^3 + 5x^2 = 14x \\ -14x \quad -14x \\ \hline \end{array}$$

$$x=0$$

$$x+7=0$$

$$x-2=0$$

$$x^3 + 5x^2 - 14x = 0$$

$$x(x^2 + 5x - 14) = 0$$

$$x(x+7)(x-2) = 0$$

$$x = -7, 2, 0$$

$$1) 5a(3a - 1)(2a + 4) = 0$$

$$2) 3x^2 - 41x = -60$$

$$3) 9x^2 = 1$$

$$4) 5m^2 = 85m$$

$$5) x^3 - 9x^2 + 20x = 0$$

$$6) 8b^2 - 10b = 3$$

$$7) w^3 - 9w = 0$$

$$1) \underline{5a(3a - 1)(2a + 4)} = 0$$

$$\frac{5a=0}{5} \quad \frac{5}{5}$$

$$a=0$$

$$3a-1=0$$

$$\frac{+1 \quad +1}{3a=1}$$

$$\frac{1}{3} \quad \frac{1}{3}$$

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

$$2a+4=0$$

$$\frac{-4 \quad -4}{2a=-4}$$

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

$$a=-2$$

$$a=0, \frac{1}{3}, -2$$

$$2) 3x^2 - 41x = -60$$

$$\quad \quad \quad +60 \quad +60$$

$$\underline{3x^2 - 41x + 60 = 0}$$

$$(3x - 5)(x - 12) = 0$$

$$x = \frac{5}{3}, 12$$

$$3x-5=0$$

$$\frac{+5 \quad +5}{3x=5}$$

$$\frac{5}{3} \quad \frac{5}{3}$$

$$x=\frac{5}{3}$$

$$3) 9x^2 = 1$$

$$\begin{array}{r} -1 \quad -1 \\ \hline \end{array}$$

$$9x^2 - 1 = 0$$

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

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

$$4) 5m^2 = 85m$$

$$\begin{array}{r} -85m \quad -85m \\ \hline \end{array}$$

$$5m^2 - 85m = 0$$

$$5m(m-17) = 0$$

$$m = 0, 17$$

$$5) x^3 - 9x^2 + 20x = 0$$

$$x(x^2 - 9x + 20) = 0$$

$$x(x - 4)(x - 5) = 0$$

$$x = 0, 4, 5$$

$$6) \quad 8b^2 - 10b = 3 \quad (8b \quad)(b \quad) = 0$$

$$\quad \quad \quad -3 \quad -3 \quad (4b + 1)(2b - 3) = 0$$

$$\underline{8b^2 - 10b - 3 = 0}$$

$$(4b + 1)(2b - 3) = 0$$

$$b = -\frac{1}{4}, \frac{3}{2}$$

$$7) w^3 - 9w = 0$$