

1813

Sit with your

Jan. 12- bell ringer  
Factor completely.

group. F S

$$40x^4 - 116x^3 + 84x^2$$

$$\begin{array}{r|l} 210 & -29 \\ -14 \cdot -15 & -29 \end{array}$$

$$4x^2(10x^2 - 29x + 21)$$

$$\begin{array}{r} \frac{10}{-14} = \frac{5}{-7} \end{array}$$

$$4x^2(5x-7)(2x-3)$$

$$\begin{array}{r} \frac{10}{-15} = \frac{2}{-3} \end{array}$$

$$26) 5a^3 - 30a^2 + 50a$$

$$\boxed{5a(a^2 - 6a + 10)}$$

$$\begin{array}{r|l} F & S \\ 20 & -6 \\ 5 \cdot 2 & \\ 10 \cdot 1 & \end{array}$$

$$19) 6c^2 - 10c - 4$$

$$2(3c^2 - 5c - 2)$$

$$\begin{array}{r|l} F & S \\ -6 & -5 \\ -6 \cdot 1 & -5 \checkmark \end{array}$$

$$\boxed{2(c-2)(3c+1)}$$

$$\begin{array}{r} \frac{3}{-6} = \frac{1}{-2} \end{array}$$

$\frac{3}{1}$

Section 8-5&8-6

Learning target:

You can solve polynomial equations by factoring and using the Zero product property.

The Zero Product Property:

If  $x \cdot y = 0$ , then  $x = 0$   
or  $y = 0$ .

Solve

$$1) \quad 3k(k+10) = 0$$

$$3k = 0 \quad \text{or} \quad k + 10 = 0$$

$$\boxed{k = 0 \quad \text{or} \quad k = -10}$$

check

$$3k(k+10) = 0$$

$$3 \cdot 0 (0+10)$$

$$0(10) = 0$$

✓

$$3k(k+10) = 0$$

$$3(-10)(-10+10) = 0$$

$$-30(0) = 0 \quad \checkmark$$

$$2) \quad 20p^2 - 15p = 0$$

$$5p(4p - 3) = 0$$

$$5p = 0$$

$$p = 0$$

or

$$4p - 3 = 0$$

$$+3 \quad +3$$

$$4p = 3$$

$$p = \frac{3}{4}$$

$$3) \quad 4y = 12y^2$$

$$\underline{-4y}$$

$$\underline{-4y}$$

$$0 = 12y^2 - 4y$$

$$0 = 4y(3y - 1)$$

$$4y = 0 \quad \text{or} \quad 3y - 1 = 0$$

$$y = 0$$

$$3y = 1$$

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

$$4) x^2 - 7x + 12 = 0$$

$$(x-3)(x-4) = 0$$

$$x-3=0 \text{ or } x-4=0$$

$$x=3 \quad \left\{ \quad x=4 \right.$$

$$5) n^2 - 120 = 7n$$

$$\begin{array}{r} -7n \quad -7n \\ \hline \end{array}$$

$$n^2 - 7n - 120 = 0$$

F	S
-120	-7
-12 \cdot 10	-2
-15 \cdot 8	-7

$$(n-15)(n+8) = 0$$

$$n-15=0 \text{ or } n+8=0$$

$$n = 15 \quad \int \quad n = -8$$

$$6) \quad 2x^2 + 9x - 18 = 0$$

$$\begin{array}{r|l} F & S \\ -36 & 9 \\ \hline 12 \cdot 3 & 9 \checkmark \end{array}$$

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

$$x + 6 = 0 \text{ or } 2x - 3 = 0$$

$$\underline{x = -6}$$

$$2x = 3$$

$$\underline{x = \frac{3}{2}}$$

$$\frac{2}{12} = \frac{1}{6}$$

$$\frac{2}{-3}$$

$$7) \quad (-3x^2 + 26x - 16 = 0) \quad -$$

$$3x^2 - 26x + 16 = 0$$

$$\begin{array}{r|l} F & S \\ 48 & -26 \\ \hline -24 \cdot 2 & -26 \end{array}$$

$$(x - 8)(3x - 2) = 0$$

$$x - 8 = 0 \text{ or } 3x - 2 = 0$$

$$\underline{x = 8}$$

$$3x = 2$$

$$\underline{x = \frac{2}{3}}$$

$$\frac{3}{-24} = \frac{1}{-8}$$

$$\frac{3}{-2}$$

$$8) (y-4)^2 = 49 \quad (y+3)(y-11) = 0$$

$$(y-4)^2 - 49 = 0$$

$$(y-4+7)(y-4-7) = 0$$

$$9) 9y^2 - 12y + 4 = 0$$

$$(3y-2)(3y-2) \quad (3y-2)^2 = 0$$

$$3y-2=0$$

$$3y = 2 \quad y = \frac{2}{3}$$

36	-12
-6	-12
9	= 3
-6	-2

Extra

$$\textcircled{1} 7(k-5)(k+3) = 0$$

$$k-5=0 \quad \text{or} \quad k+3=0$$

$$k=5 \quad \quad \quad k=-3$$

$$② \quad x(x+2)(x-2)=0$$

$$x=0$$

$$x=2$$

$$x=-2$$

Assignment:

Page 497-498(10, 12,40-44E)

P. 507(20-28E)

P. 513(6,8,24-28E)

P. 520(48-54E)

P. 526-527(8,34-40E)

23)

$$42x^2 + 35x - 42$$

$$7(6x^2 + 5x - 6)$$

$$7(2x+3)(3x-2)$$

$$\begin{array}{r|l} F & S \\ -36 & 5 \end{array}$$

$$9 \cdot 4 \quad | \quad 5$$

$$\frac{6}{9} = \frac{2}{3}$$

$$\frac{-6}{-4} = \frac{3}{2}$$



36)

$$5x(x^2-9) + 10(9-x^2)$$

$$5x(x^2-9) - 10(x^2-9)$$

$$(x^2-9)(5x-10)$$

$$(x+3)(x-3) \cdot 5(x-2)$$

$$\boxed{5(x-2)(x+3)(x-3)}$$

32)  $9x^4 - 64f^2$

$$(3x^2+8f)(3x^2-8f)$$

$$10) \quad 72y^2 + 32$$

$$8(9y^2 + 4)$$

$$14) \quad \frac{1}{4}u^2 - \frac{9}{4}$$

$$\frac{1}{4}(u^2 - 9)$$

$$\frac{1}{4}(u+3)(u-3)$$