Factor completely.

$$162x^{11} - 326x^{7} + 4x^{3}$$

$$6cf = 2x^{3}$$

$$= 2x^{3} (8/x^{8} - 1/63x^{4} + 2)$$

$$-1/62 - 1 \Rightarrow 1/62 - 1/63$$

$$= 2x^{3} (x^{4} - 2)(8/x^{4} - 1)$$

$$= 2x^{3} (x^{4} - 2)(9x^{2} + 1)(9x^{2} - 1)$$

$$= 2x^{3} (x^{4} - 2)(9x^{2} + 1)(9x^{2} - 1)$$

$$= 2x^{3} (x^{4} - 2)(9x^{2} + 1)(9x^{2} - 1)$$

$$= 2x^{3} (x^{4} - 2)(9x^{2} + 1)(3x^{2} + 1)$$

Factor completely.
$$243x^{12} - 768x^4$$

 $6CF = 3x^4$ $8/x^8 - 256$
 $= 3x^4 (8/x^8 - 256)$
 $= 3x^4 (9x^4 + 16)(9x^4 - 16)$
 $= 3x^4 (9x^4 + 16)(3x^2 \pm 4)$

Factor completely.
$$216x^5 - 486x$$

 $6CF = 54x$
 $= 54x (4x^4 - 9)$
 $diff of perfect squares$
 $= 54x (2x^2 \pm 3)$

Factor completely.
$$\frac{8}{75}x^2 - \frac{18}{48}$$

$$6CF = \frac{7}{3} \Rightarrow 2 \text{ from the numerators}$$

$$= \frac{2}{3} \left(\frac{4}{25}x^2 - \frac{9}{16} \right)$$

$$\frac{1}{25}x^2 - \frac{9}{16}$$

$$\frac{1}{25}x^2 - \frac{9}{16}$$

$$\frac{1}{25}x^2 + \frac{3}{4}$$

Factor completely.

$$28x^{6} - 63x^{5} - 448x^{4} + 1008x^{3}$$

$$G_{CF} = 7x^{3}$$

$$= 7x^{3} \left(\frac{4}{7}x^{3} - 9x^{2} - 64x + 144 \right)$$

$$\frac{4x - 9}{7x^{3} - 9x^{2}}$$

$$-16 - 64x + 144$$

$$= 7x^{3} \left(\frac{4}{7}x^{2} - 16 \right)$$

$$= 7x^{3} \left(\frac{4}{7}x^{2} - 16 \right)$$

$$= 7x^{3} \left(\frac{4}{7}x^{2} - 16 \right)$$

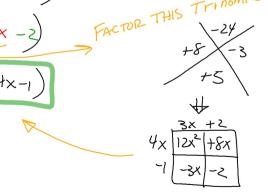
Factor completely.
$$\frac{1}{2}x^2 + \frac{5}{24}x - \frac{1}{12}$$

This would be easier to factor if there were NO denominators. If this were an equation I could multiply both sides by 24 to cancel the denominators. Since it is an EXPRESSION, the only

thing I can multiply it by is the number 1 . But I can turn the number 1 into 24/24 and only distribute the numerator

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

$$= \frac{1}{24}\left(12x^2 + 5x - 2\right)$$



You can now finish Hwk #11: Sec 5-4

Practice Sheet: Factoring

Due Monday