

Factoring GW:

Name

Key

Section:

Date:

20 points

0-1-2 scale

Factor and simplify the expression completely. Show ALL work for full credit!

1.)  $\frac{2x^3+x^2}{6x}$

$$= \frac{x^2(2x+1)}{6x} = \frac{x(2x+1)}{6}$$

or  $\frac{1}{6}x(2x+1)$

6.)  $6x^2-13x-5 \Rightarrow$

$a \cdot c = 6 \cdot -5 = -30$   
 $\uparrow$  sum  
 $-15 \cdot 2 = -30$

$$6x^2 - 15x + 2x - 5$$

$$= 3x(2x-5) + 1(2x-5)$$

$$= (2x-5)(3x+1)$$

2.)  $\frac{x^5+9x^4}{x^2}$

$$= \frac{x^4(x+9)}{x^2} = x^2(x+9)$$

\*Factored form always best.

7.)  $x^2-81 = (x+9)(x-9)$

3.)  $\frac{x^2-3x-28}{x-7}$

$$= \frac{(x-7)(x+4)}{(x-7)} = x+4$$

or  $x+4$

8.)  $x^2+64$  Simplified

4.)  $\frac{x^2+11x+30}{x+5}$

$$= \frac{(x+6)(x+5)}{(x+5)} = x+6$$

9.)  $36-x^2 = (6+x)(6-x)$   
 or  $-(x-6)(x+6)$   
 or  $-(x+6)(x-6)$

5.)  $\frac{2x^2+11x-40}{x-1}$

$a \cdot c = 2 \cdot -40 = -80$   
 $\uparrow$  sum  
 $+15 \cdot -5 = -75$   
 $+11 \cdot 10 = 110$

$$= (2x-5)(x+8)$$

$$2x^2+16x-5x-40 = 2x(x+8)-5(x+8)$$

$\frac{5x^2-7x+2}{x-1} \Rightarrow$

$a \cdot c = 5 \cdot 2 = 10$   
 $\uparrow$  sum  
 $-5 \cdot -2 = -10$

$$= \frac{5x^2-5x-2x+2}{x-1}$$

$$= \frac{5x(x-1)-2(x-1)}{(x-1)} = 5x-2$$