KEY

Section 9.2: Multiplying and Factoring

1. Multiplying a monomial and a trinomial

*the key is to _____!

a. $4b(5b^2 + b + 6)$

$20b^3 + 4b^2 + 24b$

b. $-7x(3x^2 - 8x - 1)$

$-21x^3 + 56x^2 + 7x$

c. $2y(y^2 - 6y + 5)$

$2y^3 - 12y^2 + 10y$

d. $-4a(a^2 + 2a - 3)$

$-4a^3 - 8a^2 + 12a$

2. Finding Greatest Common Factor (GCF)

a. $5v^5 + 10v^3$

5 2 5

$5v^5 =$	5	v	v	v	v	v
$10v^3 =$	5	v	v	v		2
GCF =	5	v	v	v		

$\boxed{GCF = 5v^3}$

b. $3t^2 - 18$

3 −1 18

3 6

3 2

$\boxed{GCF = 3}$

$3t^2 =$	3	t	t			
$-18 =$	3			−1	3	2
GCF =	3					

9.2 Notes

GCF = 2

c. $4x^3 - 2x^2 - 6x$

2 2 −1 2 −1 6

2 3

$4x^3 =$	2	2	x	x	x		
$-2x^2 =$	2					−1	
$-6x =$	2					−1	3

3. Factoring out a monomial.

Use the GCF to factor each polynomial.

a. $8x^2 - 12x$

GCF = 4x

4 · 2 2 6 −1

2 2 2 3

$\boxed{4x(2x-3)}$

$8x^2 =$	2	2	2	x	x	
$-12x =$	2	2		x	−1	3
GCF =	2	2		x		

b. $5d^3 + 10d$

5 2 5

$5d^3 =$	5	d	d	d
$10d =$	5	d		2
GCF =	5	d		

$\boxed{5d(d^2+2)}$

c. $6m^3 - 12m^2 - 24m$

GCF = 6m

2 3 −1 12 −1 24

3 4 2 12

2 2 3 4

2 2

$\boxed{6m(m^2-2m-4)}$

$6m^3 =$	2	3				m	m	m
$-12m^2 =$	2	3	2	−1		m	m	
$-24m =$	2	3	2	−1	2	m		
GCF =	2	3				m		

d. $3y^3 - 12y^2 + 15y$

3 −1 12 3 5

3 4

2 2

$\boxed{3y(y^2-4y+5)}$

$3y^3 =$	3	y	y	y		
$-12y^2 =$	3		y	y	−1	2
$15y =$	3		y			
GCF =	3		y			