Name Key
Date _____ Pd _____

6.2 I can demonstrate understanding of operations with polynomials.

Level 1:
Perform the indicated operation:

1. $(2m^5 + 2m^4 + 5) + (7m^5 + 2m - 3)$

$2m^5 + 2m^4 + 0m^3 + 0m^2 + 0m + 5$
$+ (7m^5 + 0m^4 + 0m^3 + 0m^2 + 2m - 3)$
$9m^5 + 2m^4 + 0 + 0 + 2m + 2$

$9m^5 + 2m^4 + 2m + 2$

2. $(3x + 7) - (5x^2 - 6x + 2)$

$0x^2 + 3x + 7$
$-(5x^2 - 6x + 2)$
$-5x^2 + 9x + 5$

$-5x^2 + 9x + 5$

3. $(2x^5 + 3x^3 - 2x + 1) + (-x^5 + 6x^4 + 2x^3 - 5)$

$2x^5 + 0x^4 + 3x^3 - 0x^2 - 2x + 1$
$+ (-x^5 + 6x^4 + 2x^3 + 0x^2 + 0x - 5)$
$x^5 + 6x^4 + 5x^3 - 0x^2 - 2x - 4$

$x^5 + 6x^4 + 5x^3 - 2x - 4$

4. $(4x^2 + 2x - 20) - (-8x^2 + 7x - 12)$

$4x^2 + 2x - 20$
$-(-8x^2 + 7x - 12)$
$12x^2 - 5x - 8$

5. $(x^3 + 4x^2 - 2x + 8) + (4x^3 - 2x^2 + 7x + 12)$

$x^3 + 4x^2 - 2x + 8$
$+ (4x^3 - 2x^2 + 7x + 12)$
$+5x^3 + 2x^2 + 5x + 20$

$5x^3 + 2x^2 + 5x + 20$

6. $(x^3 + 2x^2 - 12x + 4) - (3x^3 + 4x^2 - 8x - 2)$

$x^3 + 2x^2 - 12x + 4$
$-(3x^3 + 4x^2 - 8x - 2)$

$-2x^3 - 2x^2 - 4x + 6$

7. $(x - 1)(x^2 + 4x - 3)$

$x^2 + 4x - 3$

	x^3	$+4x^2$	$-3x$
x			
-1	$-1x^2$	$-4x$	$+3$

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

8. $(x + 1)(2x - 1)(x + 3)$

$2x - 1$

	$2x^2$	$-1x$
x		
1	$2x$	-1

$2x^2 + x - 1$

	$2x^2$	$+x$	-1
x	$2x^3$	$+x^2$	$-1x$
$+3$	$+6x^2$	$+3x$	-3

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

Unit 6.2 REVIEW Intermediate Algebra

Name_____
Date_____ Pd_____

9. $(2x-3)^3$

$(2x-3)(2x-3)(2x-3)$

	2x	-3
2x	$4x^2$	-6x
-3	-6x	+9

$4x^2-12x+9$

2x	$8x^3$	$-24x^2$	+18x
-3	$-12x^2$	+36x	-27

$8x^3-36x^2+54x-27$

10. $(x^2+3x+1)(3x^2-2x+4)$

$3x^4+7x^3+x^2+10x+4$

	x^2	+3x	+1
$3x^2$	$3x^4$	$+9x^3$	$+3x^2$
-2x	$-2x^3$	$-6x^2$	-2x
+4	$4x^2$	+12x	+4

$3x^4+7x^3+x^2+10x+4$

11. $(2x^3+7x^2-8x-4)\div(x+2)$

	2	1	-8	-4
x+2=0, -2 -2, x=-2	0	-4	6	4
-2	2	-3	-2	0

remainder

$2x^2-3x-2$

12. $(x^2+5x+3)\div(x+6)$

	1	+5	+3
x+6=0, -6 -6, x=-6	0	-6	6
-6	1	-1	9

remainder

$x-1+\frac{9}{x+6}$

13. $(2x^3+3x^2-29x-60)\div(x-4)$

	2	3	-29	-60
x-4=0, +4 +4, x=4	0	8	44	60
4	2	11	15	0

$2x^2+11x+15$

Level 2:

14. Find the perimeter and area of the rectangle: (opposite sides =)

$3x^3-4x+2$

$-2x+8$ $\qquad$ $-2x+8$

$3x^3-4x+2$

Perimeter (add all sides)

$3x^3-4x+2$
$3x^3-4x+2$
$-2x+8$
$-2x+8$

$6x^3-12x+20$

Perimeter: $6x^3-12x+20$ Area: $6x^4+24x^3+8x^2-36x+16$

Area $B\times h$

$3x^3-4x+2$

$-2x$	$6x^4$	$+8x^2$	$-4x$
$+8$	$24x^3$	$-32x$	$+16$

Name_____
Date_____ Pd_____

Level 3:

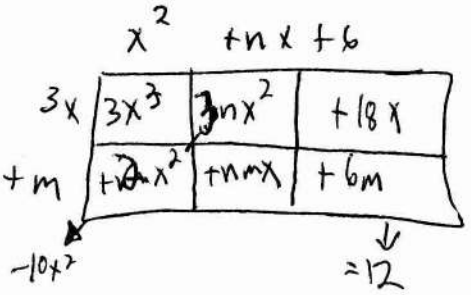
15. Find the values of m and n that will make the following statement true:

$(3x + m)(x^2 + nx + 6) = 3x^3 - 10x^2 + 10x + 12$

m = 2

n = -4

$(3x + m)(x^2 + nx + 6)$



$3nx^2 + 2x^2 = -10x^2$

$\frac{3nx^2}{3} = \frac{-12x^2}{3}$

$n = -4$

16. Create two polynomials that have a sum of $-3x^3 + 2x^2 - 4x + 5$

$-3x^3 + 2x^2$ + $-4x + 5$

17. Create two polynomials that have a difference of $x^4 + 4x^2 - 7x + 12$

$2x^4 + 6x^2 + 10$ - $x^4 + 2x^2 - 2$

18. The area of a rectangle is $3x^2 + 13x - 30$. The width of the rectangle is $x + 6$. What is the length?

$(3x^2 + 13x - 30) \div (x + 6)$

$x+6=0$, $-6=-6$	3	13	-30
$x=-5$		-18	30
	-6 | 3	-5	0

$3x - 5$