Integrated Math 3
Unit 6: Polynomials
6.4 Worksheet

Name: _____

Date:_____ Period:_____

Unit 6 Quiz Review

Name each polynomial by degree and number of terms.

*put in standard form and combine like terms!

1. $-3x^5 - 10x^4 - x^3 + 4x$

quintic polynomial

2. $-8x^4 + 2x^3 + 9x^5 \Rightarrow 9x^5 - 8x^4 + 2x^3$

quintic trinomial

3. k^4

quartic monomial

4. $7n - 4 + 3n \Rightarrow 10n - 4$

linear binomial

Simplify each of the polynomials by performing the indicated operation.

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

$\Rightarrow -5m^2 - m + 4 - 3m^2 - 5m + 2$

$= \boxed{-8m^2 - 6m + 6}$

6. $(3p^3 + 3p^2 + 9) - (5p^3 - 7p^2 + 6p - 9)$

$\Rightarrow 3p^3 + 3p^2 + 9 - 5p^3 + 7p^2 - 6p + 9$

$= \boxed{-2p^3 + 10p^2 - 6p + 18}$

7. $(x - 8)(x - 7)$

	x	-7
x	x^2	$-7x$
-8	$-8x$	56

$\Rightarrow x^2 - 7x - 8x + 56$

$= \boxed{x^2 - 15x + 56}$

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

	x	2
x	x^2	$2x$
6	$6x$	12

$x^2 + 2x + 6x + 12 - (5x^3 + 3x^2 - 5)$

$= \boxed{x^2} + 8x + \boxed{12} - 5x^3 \boxed{- 3x^2} \boxed{+ 5}$

$= \boxed{-5x^3 - 2x^2 + 8x + 17}$

Solve each equation.

9. $5x^2 - 35x + 60 = 0$

$5(x^2-7x+12)=0$

	x	-3
x	x^2	$-3x$
-4	$-4x$	12

Mult: $12x^2$
Add: $-7x^2$

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

$5 \neq 0$

$x-4=0$
$+4 \quad +4$
$x=4$

$x-3=0$
$+3 \quad +3$
$x=3$

10. $x^3 + 11x^2 - 12x = 0$

$x(x^2+11x-12)=0$

	x	12
x	x^2	$12x$
-1	$-x$	-12

Mult: $-12x^2$
Add: $11x$

$x(x-1)(x+12)=0$

$x=0$

$x-1=0$
$+1 \quad +1$
$x=1$

$x+12=0$
$-12 \quad -12$
$x=-12$

11. $28x^3 + 16x^2 - 21x - 12 = 0$

	$7x$	4
$4x^2$	$28x^3$	$16x^2$
-3	$-21x$	-12

$(4x^2-3)(7x+4)=0$

$4x^2-3=0$
$+3 \quad +3$
$\frac{4x^2}{4} = \frac{3}{4}$
$x^2 = \frac{3}{4}$
$x = \pm\sqrt{\frac{3}{4}}$

$7x+4=0$
$-4 \quad -4$
$\frac{7x}{7} = \frac{-4}{7}$
$x = \frac{-4}{7}$

12. $80x^2 = -15x$

$+15x \quad +15x$
$80x^2 + 15x = 0$

$5x(16x+3)=0$

$5x=0$
$\frac{5x}{5} = \frac{0}{5}$
$x=0$

$16x+3=0$
$-3 \quad -3$
$\frac{16x}{16} = \frac{-3}{16}$
$x = -3/16$

13. $x(x-3)(x^2-25)(x^2+x-12)=0$ ← difference of squares

$\Rightarrow x(x-3)(x-5)(x+5)(x-3)(x+4)=0$

$x=0$ | $x-3=0$ $+3\ +3$ $x=3$ | $x-5=0$ $+5\ +5$ $x=5$ | $x+5=0$ $x=-5$ | $x-3=0$ $x=3$ | $x+4=0$ $x=-4$

	x^2	$4x$
-3	$-3x$	-12

Mult: $-12x^2$

Add: x

14. $6x^2-2=x$

$-x\ \ -x$

$6x^2-x-2=0$

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

Mult: $-12x^2$

Add: $-x$

$(2x+1)(3x-2)=0$

$2x+1=0$ $-1\ -1$ $\frac{2x}{2}=\frac{-1}{2}$ $x=-\frac{1}{2}$

$3x-2=0$ $+2\ +2$ $\frac{3x}{3}=\frac{2}{3}$ $x=\frac{2}{3}$

15. $9x^2-1=0$ ← difference of squares

$(3x-1)(3x+1)=0$

$3x-1=0$ $+1\ +1$ $\frac{3x}{3}=\frac{1}{3}$ $x=\frac{1}{3}$

$3x+1=0$ $-1\ -1$ $\frac{3x}{3}=\frac{-1}{3}$ $x=-\frac{1}{3}$

16. $18x^3-9x^2-24x+12=0$

$3(6x^3-3x^2-8x+4)=0$

$3(3x^2-4)(2x-1)=0$

$3\neq 0$

$3x^2-4=0$ $+4$ $3x^2=4$ $x=\pm\sqrt{4/3}$

$2x-1=0$ $+1\ +1$ $2x=1$ $x=1/2$

	$2x$	-1
$3x^2$	$6x^3$	$-3x^2$
-4	$-8x$	4