

3.1-3.3 Review

Simplify each expression. Identify the Leading Coefficient, Degree, and Name.

$$1) (-4n^2 - 2 + 3n^4) + (7 - 7n^2 + 2n^4)$$

$$5n^4 - 11n^2 + 5$$

$$\text{LC: } 5 \quad \text{D: } 4$$

Name: quartic trinomial

$$2) (4n^3 + 6n + 3n^4) - (2n^4 - 5n^3 - 3n)$$

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

$$n^4 + 9n^3 + 9n$$

$$\text{LC: } 1 \quad \text{D: } 4$$

Name: quartic trinomial

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

$$-7r^3 + 5r^2 + 5r + 3$$

$$\text{LC: } -7 \quad \text{D: } 3$$

Name: cubic polynomial

$$4) (-8 + 6k^4 + 2k^2) - (-8 + k^4 - 2k^2)$$

$$-8 + 6k^4 + 2k^2 + 8 - k^4 + 2k^2$$

$$5k^4 + 4k^2$$

$$\text{LC: } 5 \quad \text{D: } 4$$

Name: quartic binomial

Identify the degree of the following monomials

$$5) 4x^3y^5z$$

9

$$6) -2x^4$$

4

$$7) 15$$

0

$$8) a^4b$$

5

Find each product.

$$9) 6(3m^2 - mn - 2n^2)$$

$$18m^2 - 6mn - 12n^2$$

$$10) 8(4x^2 + 7xy - 5y^2)$$

$$32x^2 + 56xy - 40y^2$$

11) $(4x + 6)(7x - 2)$

$$28x^2 - 8x + 42x - 12$$

$$\boxed{28x^2 + 34x - 12}$$

12) $(2x + 7)(2x + 1)$

$$4x^2 + 2x + 14x + 7$$

$$\boxed{4x^2 + 16x + 7}$$

13) $(3n - 5)(8n^2 + n - 7)$

	$8n^2 + n - 7$	
$3n$	$24n^3$	$3n^2 - 21n$
-5	$-40n^2$	$-5n + 35$

$$\boxed{24n^3 - 37n^2 - 26n + 35}$$

14) $(7x^2 - 5x - 2)(8x^2 - 5x + 4)$

	$8x^2 - 5x + 4$		
$7x^2$	$56x^4$	$-35x^3$	$28x^2$
$-5x$	$-40x^3$	$25x^2$	$-20x$
-2	$-16x^2$	$10x$	-8

$$\boxed{56x^4 - 75x^3 + 37x^2 - 10x - 8}$$

Expand the following.

15) $(x - y)^4$

1	x^4	y^0	$= x^4$
4	x^3	y^1	$= -4x^3y$
6	x^2	y^2	$= 6x^2y^2$
4	x^1	y^3	$= -4xy^3$
1	x^0	y^4	$= y^4$

$$\boxed{x^4 - 4x^3y + 6x^2y^2 - 4xy^3 + y^4}$$

16) $(x + 3)^3$

1	x^3	3^0	$= x^3$
3	x^2	3^1	$= 9x^2$
3	x^1	3^2	$= 27x$
1	x^0	3^3	$= 27$

$$\boxed{x^3 + 9x^2 + 27x + 27}$$