Basic Polynomial Operations

Date_____ Period____

Name each polynomial by degree and number of terms.

1) $-10x$

2) $-10r^4 - 8r^2$

3) 7

4) $9a^6 + 3a^5 - 4a^4 - 3a^2 + 9$

5) $-3n^3 + n^2 - 10n + 9$

6) $7x^2 - 9x - 10$

7) $-4b$

8) $-9 + 7n^3 - n^2$

9) Critical thinking: Why is it impossible to have a linear trinomial with one variable?

Simplify each expression.

10) $(4m^4 - m^2) + (5m^2 + m^4)$

11) $(5x + x^4) - (3x^4 + 4x)$

12) $(5 + 7x^3 + 3x^2) + (-12 + 5x + 6x^2)$

13) $(4 + 3x^2 + 8x^3) + (-7x^3 + 12x^5 + 6x^2)$

14) $(13m^4 + 2) + (m^4n^2 + 2 - 2m^4) - (-13m^2n^3 + 5m^4)$

15) $(-10mn^3 - 4n^4) - (-2n^4 - 7mn^3 - 6n^3) - (5n^3 + 6mn^3)$

Find each product.

16) $(2n + 3)(n - 2)$

17) $(5v - 1)(4v + 3)$

18) $(2r - 2)(-r - 7)$

19) $(3x + 5)(3x - 6)$

20) $(-4x^2 - 5x - 1)(4x^2 - 6x - 2)$

21) $(x^2 - 2x - 8)(-x^2 + 3x - 5)$

22) $(-4m - 4n)(-6m - 6n)$

23) $(8u + 4v)(6u + 6v)$

Critical thinking questions:

24) Simplify: $(a + b)(c + d)$

25) Simplify and then classify by degree and number of terms:
$2x + 3x^2(4x - 5)$

Multiplying a Polynomial and a Monomial

Date_____ Period____

Find each product.

1) $8x(6x + 6)$

2) $7n(6n + 3)$

3) $3r(7r - 8)$

4) $8(8k - 8)$

5) $10a(a - 10b)$

6) $2(9x - 2y)$

7) $7x(6x + 4y)$

8) $4a(8a - 8b)$

9) $3n(n^2 - 6n + 5)$

10) $2k^3(2k^2 + 5k - 4)$

11) $8r^2(4r^2 - 5r + 7)$

12) $3(3v^2 + 8v - 5)$

13) $7(6x^2 + 9xy + 10y^2)$

14) $2u(6u^2 - 9uv + v^2)$

15) $9(x^2 + xy - 8y^2)$

16) $9v^2(u^2 + uv - 5v^2)$

 Name_____

Multiplying Binomials

Date_____ Period____

Find each product.

1) $(3n + 2)(n + 3)$

2) $(n - 1)(2n - 2)$

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

4) $(r + 1)(r - 3)$

5) $(2n + 3)(2n + 1)$

6) $(3p - 3)(p - 1)$

7) $(3p + 3)(3p + 2)$

8) $(k - 2)(k - 3)$

9) $(v - 1)(3v - 3)$

10) $(2x - 3)(3x + 3)$

11) $(4n + 4)(5n - 8)$

12) $(5x - 2)(5x - 8)$

13) $(6x + 2)(2x + 8)$

14) $(3x + 3)(x + 4)$

15) $(5v + 4)(3v - 6)$

16) $(x - 4)(x - 7)$

17) $(5x + 6)(8x - 4)$

18) $(8b - 1)(5b - 5)$