

Write each polynomial in standard form. Then name each polynomial based on its degree and number of terms.

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

Cubic, Trinomial

2.  $y^2 + 3y + 6 - 4y^2 - 6y$  Quadratic  
 $-3y^2 - 3y + 6$  Trinomial

3.  $8 - 6w - 12w - 8w^2 - 7 - 3w^3$

$-3w^3 - 8w^2 - 18w + 1$

Cubic, 4<sup>th</sup> term

4.  $6x^5 + 3x^3 - 7x^5 - 4x^3$

$-x^5 - x^3$  Quintic  
Binomial

Simplify. Write each answer in standard form.

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

$2x^2 - x + 2$

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

$5x^2 + 9x + 2$

7.  $(3x^2 + 4x - 10) - (2x + 7 - 4x^2)$

$7x^2 + 2x - 17$

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

$-3x^3 - 12x^2 + 15x$

Simplify each product. Write in standard form.

9.  $8x(3x + 4 - x^2)$

$24x^2 + 32x - 8x^3$

$-8x^3 + 24x^2 + 32x$

10.  $-y(8y^2 + y)$

$-8y^3 - y^2$

11.  $7x(3 - x + 6x^3)$

$42x^4 - 7x^2 + 21x$

12.  $5y(y^5 + 8y^3)$

$5y^6 + 40y^4$

13.  $6x(x^2 + 2x + 1)$

$6x^3 + 12x^2 + 6x$

14.  $(y + 4)(y + 3)$

$y^2 + 7y + 12$

15.  $(a + 3)(a - 1)$

$a^2 + 2a - 3$

16.  $(2y - 8)(y - 4)$

$2y^2 - 16y + 32$

17.  $(x + 1)^2$

$x^2 + 2x + 1$

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

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

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

19.  $(2x^2 - 6x - 5)(3 - x)$

$6x^2 - 18x - 15 - 2x^3 + 6x^2 + 5x$

$-2x^3 + 12x^2 - 13x - 15$

20.  $(8x - 7)(3x + 2)$

$24x^2 - 5x - 14$

Factor out the GCF. If you can't factor it write "prime"

Period \_\_\_\_\_

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Factor the common factor out of each expression.

1)  $16p^4 + 4p^3$

$$4p^3(4p+1)$$

3)  $63 + 45b$

$$9(7+5b)$$

5)  $-6r^5 - 6r^4$

$$-6r^4(r+1)$$

7)  $14a + 21a^2 + 21a^3$

$$7a(2+3a+3a^2)$$

9)  $-28v^2 - 8v - 36$

$$-4(7v^2+2v+9)$$

2)  $9x^6 - 63x^3 - 90x^2$

$$9x^2(x^4 - 7x - 10)$$

4)  $64 + 40x^2 + 72x$

$$8(8+5x^2+9x)$$

6)  $-12r^2 - 4r - 12$

$$-4(3r^2+r+3)$$

8)  $10n^3 - 9n^2 + n$

$$n(10n^2 - 9n + 1)$$

10)  $-8x^7 + 24x^6 + 12x^5$

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

**Practice**

Find the degree of the monomial.

1.  $-8x$  1

2.  $\frac{1}{2}y^5$  5

3.  $12.8$  0

4.  $6^2$  0

5.  $x^3z^2$  5

6.  $-3mn$  2

7.  $8q^2r^4s$  7

8.  $10g^5h^7j^2$  14