

4.1 & 4.2 Practice

For each polynomial, state its:

a) leading coefficient

b) type of degree

c) type by number of terms

1) $3a^4 - 7a^3 + a^2$

a)

b)

c)

a) leading coefficient: 3

b) 4th degree

c) trinomial

2) $3k^8 - 7k^7 + k^2 + 2$

a)

b)

c)

a) leading coefficient: 3

b) 8th degree

c) 4 term polynomial

3) $3a$

a)

b)

c)

a) leading coefficient: 3

b) linear

c) monomial

4) $7a^4 + 3a^3 + 8a - 3$

a)

b)

c)

a) leading coefficient: 7

b) 4th degree

c) 4 term polynomial

5) -8

a)

b)

c)

a) leading coefficient: none

b) constant

c) monomial

6) $-2n^6 - 3$

a)

b)

c)

a) leading coefficient: -2

b) 6th degree

c) binomial

7) $3x^8 - 3x^3$

a)

b)

c)

a) leading coefficient: 3

b) 8th degree

c) binomial

8) $-8x^7 + 6x^4 - 5x$

a)

b)

c)

a) leading coefficient: -8

b) 7th degree

c) trinomial

$$9) 3x^6 + 7x^5 - 7x^4 + 2x^3 - 9x^2 - 2$$

a)

b)

c)

- a) leading coefficient: 3
- b) 6th degree
- c) polynomial with 6 terms

$$10) -7a^4 - 7a^3 + 2a^2 + 2a$$

- a) leading coefficient: -7
- b) 4th degree
- c) polynomial with 4 terms

a)

b)

c)

$$11) -4v^5$$

- a) leading coefficient: -4
- b) 5th degree
- c) monomial

a)

b)

c)

$$12) -2x^5 + 9x^2$$

- a) leading coefficient: -2
- b) 5th degree
- c) binomial

a)

b)

c)

Simplify each sum.

$$13) (7a - a^2 - 5) + (4 - 7a^2 + 8a)$$

$$-8a^2 + 15a - 1$$

$$14) (8n - 8n^4 - 4) + (6 - 5n^3 - 5n)$$

$$-8n^4 - 5n^3 + 3n + 2$$

$$15) (x^3 + x + x^4 + 2x^2) + (7x^3 + 8x^2 + 7 + x^4)$$

$$2x^4 + 8x^3 + 10x^2 + x + 7$$

$$16) (3p^4 - 2p^2 + 8p^3 - 8p) + (8p^3 - 6p^4 + 7p + 6p^2)$$

$$-3p^4 + 16p^3 + 4p^2 - p$$

Simplify each difference. Be sure to distribute the minus sign.

$$17) (2x^4 + 5x^3 + 3x^2) - (5x^4 - 8x^3 + 3x^2)$$
$$-3x^4 + 13x^3$$

$$18) (x^4 + 5 + 5x^2) - (4 - x^2 - 2x^4)$$
$$3x^4 + 6x^2 + 1$$

$$19) (5n + 5n^4 - 2n^2 - 5n^3) - (4n^3 + 7n - 3 - 6n^2)$$
$$5n^4 - 9n^3 + 4n^2 - 2n + 3$$

$$20) (3r^4 + 7 - 2r^3 + 6r) - (4 + r^4 - 4r^2 + 5r)$$
$$2r^4 - 2r^3 + 4r^2 + r + 3$$

Evaluate each function at the given value. (Plug in the given x -value and simplify).

$$21) f(x) = x^5 + 7x^4 + 15x^3 + 4x^2 - 6x + 9 \text{ at } x = -2$$
$$-3$$

22) $f(x) = x^4 - 7x^3 + 17x^2 - 12x - 18$ at $x = 3$

-9

23) $f(x) = 5x^4 - 25x^3 - 24x^2 - 36x + 4$ at $x = 6$

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24) $f(x) = x^5 + x^4 - 27x^3 - 17x^2 + 13x - 13$ at $x = 5$

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Find each product.

$$25) (2b^2 - 5b - 2)(5b^2 + 5b - 3)$$
$$10b^4 - 15b^3 - 41b^2 + 5b + 6$$

$$26) (x^2 + 3x + 3)(8x^2 + 5x + 6)$$
$$8x^4 + 29x^3 + 45x^2 + 33x + 18$$

$$27) (7n^2 - 2n - 3)(n^2 + 8n - 2)$$
$$7n^4 + 54n^3 - 33n^2 - 20n + 6$$