

Review I

Name each polynomial by degree and number of terms.

1) $-5v^5$

Degree 5
Term 1
Monomial

3) $-4n^3 + 2n^2 - 10n$

Degree 3
Terms 3
Trinomial

5) p

Degree 1
Term 1
Monomial

Simplify each expression.

7) $4b - 10b$

$-6b$

9) $1 + 4n + 4n + 3$

$8n + 4$

Simplify.

11) $p - 5p^4 + 8p^4 - 7p$

$3p^4 - 6p$

13) $-5p^2 - 3p^4 - 8p^2 - 7p^4$

$-10p^4 - 13p^2$

Simplify each expression.

15) $5a^4 - 7a^3 - 3a^4 - 6a$

$2a^4 - 7a^3 - 6a - 1$

17) $-6p^4 + 2p^2 - 3p^3 + p^4 - 5p^3 - 8p^2$

$-5p^4 - 8p^3 - 6p^2$

2) $4r^6 - 5r^4 + 4r$

Degree 6
Terms 3
Trinomial

4) $2n^2 + 2$

Degree 2
Terms 2
Binomial

6) 4

Degree 0
Term 1
Monomial

8) $3 + 9r + 7 - 4r$

$5r + 10$

10) $5b - 9b$

$-4b$

12) $3k^4 + 4k^2 - 7k^2 - 4k^4$

$-k^4 - 3k^2$

14) $-6 + 6k^4 + 1 + 3k^4$

$9k^4 - 5$

16) $6a^3 - 5a^2 + 6a^4 + 6a^2 - a^3 - 2a^4$

$4a^4 + 5a^3 + a^2$

18) $-5b - 6 + 3b^4 + 3b^4 + 2b^2 - 7b$

$6b^4 + 2b^2 - 12b - 6$

Simplify each sum.

19) $(3n^2 - 5) + (3 - 2n^2)$

$n^2 - 2$

20) $(-4k^3 + 8k) + (-7 + 6k^3)$

$2k^3 + 8k - 7$

21) $(4x^2 + 2x^3) + (5x^2 - x^3)$

$x^3 + 9x^2$

22) $(-5v^4 + 4) + (3 - 4v^4)$

$-9v^4 + 7$

Simplify each difference.

23) $(-2m + 2) - (7m - 7) \rightarrow -2m + 2 - 7m + 7$

$-9m + 9$

24) $(v + 8v^4) - (3v^4 - 7v^3) \rightarrow v + 8v^4 - 3v^4 + 7v^3$

$5v^4 + 7v^3 + v$

25) $(7m - m^4) - (-8m^4 + 7m) \rightarrow 7m - m^4 + 8m^4 - 7m$

$7m^4$

26) $(-7 + 2x) - (-7 - 6x^4) \rightarrow -7 + 2x + 7 + 6x^4$

$6x^4 + 2x$

Simplify each sum.

27) $(4v^4 - 5 - v^3) + (v^3 + 2 + 4v^4)$

$8v^4 - 3$

28) $(-4v^2 - 3v - 5v^3) + (-v - 6v^3 + 4v^4)$

$4v^4 - 11v^3 - 4v^2 - 4v$

29) $(-3 + 2x^4 - 7x^3) + (-5x^4 + 4x^3 + 3)$

$-3x^4 - 3x^3$

30) $(-6n^2 + 5 - 5n^4) + (6n^2 - 6 + n^4)$

$-4n^4 - 1$

Simplify each difference.

31) $(5r^4 - 4 - 8r^3) - (8r^2 + 2r^4 + 4)$

$3r^4 - 8r^3 - 8r^2 - 8$

32) $(2k^4 - k^2 - 3k) - (4k - 4k^2 + 5k^4)$

$7k^4 - 5k^2 - 7k$

33) $(5 - k + 4k^4) - (-4 - 3k - 5k^4)$

$9k^4 + 2k + 9$

34) $(2p^3 - 4p^2 + 6) - (6p^2 + 4p^3 + 2p)$

$-2p^3 - 10p^2 - 2p + 6$

Simplify each expression.

35) $(-4x - 6y - 4x^2) + (-y + 3x + 6x^2)$

$2x^2 - x - 7y$

36) $(8x^2y^2 - 6y^2 - 6xy) + (-xy - 2x^2 - 2x^2y^2)$

$6x^2y^2 - 7xy - 2x^2 - 6y^2$

37) $(8xy - 1 + 6xy^2) + (7xy - 4 + 2xy^2)$

$8xy^2 + 15xy - 5$

38) $(-5 - 4a^2 - 8b^2) + (-6a^2b + 1 + 4a^2)$

$-6a^2b - 8b^2 - 4$

Chapter 5.1 – 5.4 Review II

2. Is the polynomial a monomial, binomial, or trinomial?

- a) $-7t$ The polynomial has 1 term, so it is a MONOMIAL.
- b) $8d^2 + 7$ The polynomial has 2 terms, so it is a BINOMIAL.
- c) $s^2 + 5s - 6$ The polynomial has 3 terms, so it is a TRINOMIAL.
- d) $4t - 12$ The polynomial has 2 terms, so it is a BINOMIAL.
- e) -15 The polynomial has 1 term, so it is a MONOMIAL.

3. Name the degree of each polynomial.

- a) $5a^2 - 3a + 6$ The term with the greatest exponent is $5a^2$.
It has exponent 2.
So, the polynomial has degree 2.
- b) $4b - 6$ The term with the greatest exponent is $4b$.
It has exponent 1.
So, the polynomial has degree 1.
- c) $4d^2 - 3d$ The term with the greatest exponent is $4d^2$.
It has exponent 2.
So, the polynomial has degree 2.
- d) -4 -4 can be written as $-4x^0$.
So, the polynomial has degree 0.

1. What is the coefficient of each term?

a) $2x^2$ 2 b) $6w$ 6 c) $-3x$ -3
 d) $7t$ 7 e) b 1 f) $-s$ -1

2. a) Which of these terms are like $3z^2$?

$5z$ $-z^2$ -9 $-6z$ $2z^2$ -11 $-4z^2$
 $3z^2$ has variable z and exponent 2 .
 Find all terms with the same variable and exponent: $2z^2, -4z^2, -z^2$

b) Which of these terms are like $-5x$?

$-4x$ $-3x^2$ -2 $7x$ $5x^2$ 8 $-x$ $-5t$
 $-5x$ has variable x and exponent 1 .
 Find all terms with the same variable and exponent: $-4x, 7x, -x$

4. Add integers to combine like terms.

a) $-3c + 5c$ $-3 + 5 = \underline{2}$ b) $4s - s$ $4 + (-1) = \underline{3}$
 $-3c + 5c = \underline{2c}$ $4s - s = \underline{3s}$
 c) $-2x^2 + 7x^2$ $\frac{-2}{5x^2} + \frac{7}{5x^2} = \underline{5}$ d) $8e^2 - 8e^2$ $\frac{8-8}{0} = \underline{0}$

5. Simplify each polynomial.

a) $\overline{5m} + 7\overline{-2m} + 1$
 $= \underline{5m - 2m + 7 + 1}$
 $= \underline{3m + 8}$

b) $\overline{7c^2} - \overline{6c} - \overline{4c^2} + \overline{c}$
 $= \underline{7c^2 - 4c^2 - 6c + c}$
 $= \underline{3c^2 - 5c}$

c) $\overline{11} - \overline{9v} + \overline{v^2} + \overline{2} - \overline{v}$
 $= \underline{v^2 - 9v - v + 11 + 2}$
 $= \underline{v^2 - 10v + 13}$

d) $\overline{-7f^2} + \overline{12f} - \overline{2} - \overline{3f^2} - \overline{3f} + \overline{5}$
 $= \underline{-7f^2 - 3f^2 + 12f - 3f - 2 + 5}$
 $= \underline{-10f^2 + 9f + 3}$

6. Identify and explain any errors you find.

a) $3x + 2 = 5x$

$3x$ and 2 cannot be combined

b) $5s + 3s = 8s^2$

Variables are left untouched in addition and subtraction

c) $x^2 - x^2 = 0$

No Errors

3. Add horizontally.

a) $(2r - 3) + (3r - 1)$

$= 2r - 3 + 3r - 1$

$= 2r + 3r - 3 - 1$

$= \underline{5r - 4}$

Remove the brackets.

Group like terms.

Add the coefficients of like terms.

$2 + 3 = \underline{5}$ and $-3 + (-1) = \underline{-4}$

b) $(7h^2 - 2h) + (-4h^2 + 9h - 4)$

$= \underline{7h^2 - 2h - 4h^2 + 9h - 4}$

$= \underline{7h^2 - 4h^2 - 2h + 9h - 4}$

$= \underline{3h^2 + 7h - 4}$

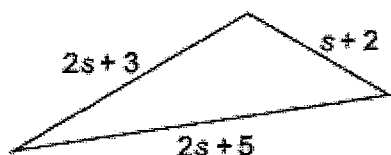
c) $(-2y^2 + 6y - 1) + (2y^2 - 6y + 5)$

$= \underline{-2y^2 + 6y - 1 + 2y^2 - 6y + 5}$

$= \underline{-2y^2 + 2y^2 + 6y - 6y - 1 + 5}$

$= \underline{4}$

5. Find the perimeter of this triangle.



Perimeter = $\underline{(2s+3) + (s+2) + (2s+5)}$

$= \underline{2s + s + 2s + 3 + 2 + 5}$

$= \underline{5s + 10}$

3. Write the opposite of each term.

a) -9 : 9

b) $3r$: $-3r$

c) $-2s^2$: $2s^2$

d) t : $-t$

4. Subtract.

$$\begin{aligned}
 \text{a) } & (4p + 1) - (p + 10) \\
 & = \underline{4p+1} - (p + 10) \\
 & = 4p + 1 + \underline{-p - 10} \\
 & = \underline{4p - p + 1 - 10} \\
 & = \underline{3p - 9} \\
 & = \underline{\hspace{2cm}}
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & (3h^2 + 5h - 4) - (h^2 - 4h + 6) \\
 & = \underline{3h^2 + 5h - 4 - (h^2 - 4h + 6)} \\
 & = \underline{3h^2 + 5h - 4 - h^2 + 4h - 6} \\
 & = \underline{3h^2 - h^2 + 5h + 4h - 4 - 6} \\
 & = \underline{2h^2 + 14h - 10} \\
 & = \underline{\hspace{2cm}}
 \end{aligned}$$

$$\begin{aligned}
 \text{c) } & (4q^2 + 3) - (3q - q^2 + 3) \\
 & = \underline{4q^2 + 3 - (3q - q^2 + 3)} \\
 & = \underline{4q^2 + 3 - 3q + q^2 - 3} \\
 & = \underline{4q^2 + q^2 - 3q + 3 - 3} \\
 & = \underline{5q^2 - 3q} \\
 & = \underline{\hspace{2cm}}
 \end{aligned}$$

5. Check each solution. Identify any errors and correct them.

$$\begin{aligned}
 \text{a) } & (7x^2 + 3x + 7) - (3x^2 - 4) \\
 & = 7x^2 + 3x + 7 - 3x^2 - 4 \\
 & = 7x^2 - 3x^2 + 3x + 7 - 4 \\
 & = 4x^2 + 3x + 3
 \end{aligned}$$

$$\begin{aligned}
 & (7x^2 + 3x + 7) - (3x^2 - 4) \\
 & = \underline{7x^2 + 3x + 7 - 3x^2 + 4} \\
 & = \underline{7x^2 - 3x^2 + 3x + 7 + 4} \\
 & = \underline{4x^2 + 3x + 11}
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & (3a^2 - 2a + 4) - (2a^2 + 3) \\
 & = 3a^2 - 2a + 4 - 2a^2 - 3 \\
 & = 3a^2 - 2a^2 - 2a + 4 - 3 \\
 & = a^2 + 2a - 3
 \end{aligned}$$

$$\begin{aligned}
 & (3a^2 - 2a + 4) - (2a^2 + 3) \\
 & = \underline{3a^2 - 2a + 4 - 2a^2 - 3} \\
 & = \underline{3a^2 - 2a^2 - 2a + 4 - 3} \\
 & = \underline{a^2 - 2a + 1}
 \end{aligned}$$

Polynomial Review (5.1 - 5.4)

of page
see bottom

1. Simplify the following addition problems:

a) $(2x^3 + 24x^4) + (37x + 33)$

b) $(29x^4 + 21x + 24x^3 + 3x^2 + 16x) + (26x + 23x^2)$

c) $(8x^2 + 4x^4 + 7x^4 + 29x) + (14 + 49 + 39x^2 + 5x^3 + 45x^3)$

d) $(10x + 32x^4) + (46x^4 + 43x + 28x^2)$

e) $(45 + 46x^4) + (14 + 30x^4 + 18x^3 + 27x^3 + 0x^2)$

2. Simplify the following subtraction problems:

a) $(22x + 22x) - (5x^3 + 44x^4)$

b) $(20x + 10x^2 + 47 + 40x) - (28x^3 + 45x^2)$

c) $(15x^2 + 14x^4 + 26 + 23x) - (7x^2 + 7x^3 + 15x^4)$

d) $(8x + 49x^3 + 47x^2 + 12x^3) - (19x^3 + 30x^4 + 14x^4 + 26x^3)$

e) $(21x^4 + 32x + 33x) - (25x^4 + 26x^4 + 44 + 4x^3 + 41x)$

3. Complete the following textbook questions:

Pg. 237, #1, 2, 5 - 9, 10ad, 11aef, 12

1. a) $24x^4 + 2x^3 + 37x + 33$ b) $29x^4 + 24x^3 + 26x^2 + 63x$ c) $11x^4 + 50x^3 + 47x^2 + 29x + 63$
d) $78x^4 + 28x^2 + 53x$ e) $76x^4 + 45x^3 + 59$
2. a) $-44x^4 + 16x^3 + 47x^2 + 8x$ b) $-28x^3 - 35x^2 + 60x + 47$ c) $-1x^4 - 7x^3 + 8x^2 + 23x + 26$
d) $-44x^4 + 16x^3 + 47x^2 + 8x$ e) $-30x^4 - 4x^3 + 24x - 44$