

10-30-18

Aim: SWBAT add and subtract polynomials.

HW: Packet Page 7

Quiz Friday (Packet Pages 1 - 11)

Do Now: Packet Page 4

HOMEWORK - Intro to Polynomials

Classify each polynomial as a monomial, binomial, trinomial, or a polynomial.

- 1) $3x - 5$ binomial 2) $x^2 - 3x + 4$ trinomial
 3) $4y$ monomial 4) $-7a + 9b$ binomial
 5) $n^5 - 7n^4 + 5n^3 - n + 2$ polynomial 6) $-8x^3y^6$ monomial

Find the degree of each polynomial.

- 7) 5 0 8) $3x^2 + 4y^2$ 2
 9) $3x^4y^2z$ 7 10) $7x^3y - 2y^5$ 5
 11) $x^5 - 8x^3 + x^6$ 6 12) $-3x^2 + 7x$ 2

Circle the terms that are like terms.

- 13) $2xy, \textcircled{ut^2x}, \textcircled{2xt^2u}, 14xz, \textcircled{-7xut^2}$ 14) $\textcircled{3x^3p}, 12pxy, 3x^3z, \textcircled{-4px^3}, \textcircled{13px^3}$
 15) $mnr, m^2nr, \textcircled{mn^2r}, mnr^2, \textcircled{mn^2r}$ 16) $4pqs, 2p^2qs, \textcircled{-11pq^2s}, \textcircled{13pq^2s}$
 17) $13x, \textcircled{17}, 126zu, 31p, \textcircled{-72}, 14xy$ 18) $\textcircled{\pi r^2}, 2\pi r, \textcircled{3\pi r^3}, \textcircled{5\pi r^2}, \textcircled{8\pi r^3}$

Simplify each polynomial and write in standard form.

- 19) $6x - x^2 + 4x - 7x^2$
 $-8x^2 + 10x$
- 20) $2y - 8 + 4y - 2$
 $6y - 10$
- 21) $-4x^4 - x^3 + x^4$
 $-3x^4 - x^3$
- 22) $4(y^3 - 2y^2 + 3)$
 $4y^3 - 8y^2 + 12$
- 23) $-3(3x^3 - 6x + 4x^3) - 2x$
 $-9x^3 + 18x - 12x^3 - 2x$
 $-21x^3 + 16x$
- 24) $x(3x - 2) + 2x^2 - x + 5$
 $3x^2 - 2x + 2x^2 - x + 5$
 $5x^2 - 3x + 5$
- 25) $2n(n^2 - 5n) + 6n^3$
 $2n^3 - 10n^2 + 6n^3$
 $8n^3 - 10n^2$
- 26) $2(x - 5) + 3(x^2 + 6)$
 $2x - 10 + 3x^2 + 18$
 $3x^2 + 2x + 8$

DO NOW - Intro to Polynomials

- 1) Like terms are terms that contain the same variables with the same exponents. Give an example of like terms. $-2a^2bc^3$ and $4a^2bc^3$

Write each polynomial in standard form, state the degree, and classify it.

2) $4 + b^2 - 8b$ $b^2 - 8b + 4$ 2 trinomial

3) $11 + 2n^4 - 7n + 5n^2$ $2n^4 + 5n^2 - 7n + 11$ 4 polynomial

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

- 5) Describe and correct the error made in simplifying the polynomial.

$-5x^2 - 6(3x + 2)$ **Error: you can only combine like terms.**
 $-5x^2 - 18x - 12$ **$-5x^2$ and $-18x$ are NOT like terms.**
 $-23x^2 - 12$ **Correct Answer: $-5x^2 - 18x - 12$**

State the degree and the numerical coefficient of each term.

6) $-7xy^2z$ 4 -7 7) 12 0 none

8) $24xz^3$ 4 24 9) $17y$ 1 17

Simplify (distribute and combine like-terms) each polynomial and write your final answer in standard form.

10) $2c^2 - c^2 + 5c$

$c^2 + 5c$

11) $4q^3 - 7q^5 + 3q - q^3$

$-7q^5 + 3q^3 + 3q$

* 12) $-6(2y^3 - 4y^2 + 1) + 10y^2$
 $-12y^3 + 24y^2 - 6 + 10y^2$
 $-12y^3 + 34y^2 - 6$

AIM: SWBAT add and subtract polynomials.

Adding Polynomials

- To add polynomials: Distribute the positive sign to each term in parenthesis. This does not change the sign of each term.
- Use the commutative property to rearrange the terms so that like terms are beside each other.
- When you are rearranging terms, keep the sign with the term.
- Combine like terms following the rules for adding integers.

Examples:

A) $(x^2 + 9x - 5) + (-4x^2 - 12x + 5)$
 $x^2 + 9x - 5 - 4x^2 - 12x + 5$
 $x^2 - 4x^2 + 9x - 12x + 5 + 5$
 $-3x^2 - 3x$

B) $(8y - 9) + (-6y + 2)$
 $8y - 9 - 6y + 2$
 $8y - 6y - 9 + 2$
 $2y - 7$

signs stay the same

Add the following polynomials.

1) $(x + 3) + (8 - 5x)$

$x + 3 + 8 - 5x$
 $-4x + 11$

2) $(-4x - 7) + (2x + 9)$

$-4x - 7 + 2x + 9$
 $-2x + 2$

3) $(3x + 10) + (6x - 15)$

$3x + 10 + 6x - 15$
 $9x - 5$

4) $(x^2 + 5x) + (9x^2 + 4x)$

$x^2 + 5x + 9x^2 + 4x$
 $10x^2 + 9x$

* 5) $(-5x^2 + 8x + 12) + (3x^2 - 4x - 8)$

$-5x^2 + 8x + 12 + 3x^2 - 4x - 8$
 $-2x^2 + 4x + 4$

6) $(6x^2 - 11x - 17) + (9x^2 - 12)$

$6x^2 - 11x - 17 + 9x^2 - 12$
 $15x^2 - 11x - 29$

Subtracting Polynomials

The additive inverse is a number's opposite.

To find the opposite or additive inverse, multiply by -1.

Find the opposite of the following:

$7 \rightarrow -7$

$-4 \rightarrow 4$

$-3a \rightarrow 3a$

$5x \rightarrow -5x$

$(6a - 5b) \rightarrow -(6a - 5b) \rightarrow -6a + 5b$ $(-7b + 3c) \rightarrow -(-7b + 3c) \rightarrow 7b - 3c$

$(-4x + 3y - 6z) \rightarrow 4x - 3y + 6z$ $(5y - 4x + 7c) \rightarrow -5y + 4x - 7c$

To subtract polynomials:

- ✓ Distribute the negative sign to each term in parenthesis. This changes the sign of each term to its opposite.
- ✓ Combine like terms following rules for adding integers.

Examples:

signs become opposite

A) $(5y - 8) - (3y - 2)$

$5y - 8 - 3y + 2$

$5y - 3y - 8 + 2$

$2y - 6$

B) $(4n^2 + 11) - (-10n^2 + 7)$

$4n^2 + 11 + 10n^2 - 7$

$4n^2 + 10n^2 + 11 - 7$

$14n^2 + 4$

Subtract the following polynomials.

1) $(7x - 4) - (x + 3)$

$7x - 4 - x - 3$

$6x - 7$

2) $(-6x + 5) - (8x - 2)$

$-6x + 5 - 8x + 2$

$-14x + 7$

3) $(3x^2 + 10x) - (6x^2 - x)$

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

$-3x^2 + 11x$

4) $(5x^2 + 12x - 17) - (13 - 4x^2 + 8x)$

$5x^2 + 12x - 17 - 13 + 4x^2 - 8x$

$9x^2 + 4x - 30$

5) $(9x^2 + 5x + 7) - (4x^2 - 3x + 8)$

$9x^2 + 5x + 7 - 4x^2 + 3x - 8$

$5x^2 + 8x - 1$

* 6) $(-11x^2 - 12x + 13) - (4x^3 + x^2 - 6)$

$-11x^2 - 12x + 13 - 4x^3 - x^2 + 6$

$-4x^3 - 12x^2 - 12x + 19$

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HOMEWORK - FINDING THE SUM or DIFFERENCE

Find each sum OR difference.

1) $(2a - 6) + (3a + 8)$

2) $(9m + 7n) + (-4m + 3n)$

3) $(2x + 4y - 1) + (-x - 7 - 6y)$

4) $(3p + 2r) + (12r - 2p + 7)$

5) $(2k + 3kn) + (-6kn + 4k)$

6) $(7u^2 - 10r) + (-3u^2 + 8 - 2r)$

7) $(3x + 2) - (5x - 1)$

8) $(4r + 2u) - (-7r - 87)$

9) $(3c + 7d - 5) - (6d + 4 - 2c)$

10) $(7x - 3y + 9) - (4y - 8)$

11) $(7ax + 13by + 5) - (-3ax + 4)$

12) $(2a^3 + 7a^2b + b^3) - (a^3 + 7b^3)$