

Algebra Homework Week of October 9-12

Monday, Oct 8 – Off – Columbus Day

Tuesday, Oct 9

1. Simplify:

a. $-4x(x - 3)$

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

c. $(2x - 3)(x + 4)$

d. $(x - 4)(x - 3)$

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

f. $(3 - x)(x + 4)$

2. Simplify: $3(x + 2) - 4(x - 1)$

3. If a store sells skirts for $x - 3$ dollars, represent the cost of 8 skirts.

4. Find the sum of $4x^2 - 6x + 13$ and $8x^2 - 3x - 14$.

5. Subtract $4x^2 + 2x - 4$ from $3x^2 + 2x - 9$

6. Perform the indicated operations and simplify:

a. $5\sqrt{175} - 2\sqrt{112}$

b. $\frac{6\sqrt{10}}{5\sqrt{5}}$ (rationalize the denominator)

c. $4\sqrt{12} + \sqrt{108}$

7. Write the following in interval notation:

a. $-3 \leq x < 4$

b. $-2 \leq x < 2$ or $x > 8$

c. $\{x \mid x \text{ is any positive integer}\}$

Wednesday, Oct 10

1. Complete worksheet from class. (Practice with all exponent rules and polynomials)

2. Simplify the following expressions:

a. $\frac{9x^4 + 12x^3 - 3x^2}{3x}$

b. $\frac{26x^8 - 12x^5 + 16x^2 - 10x}{2x}$

c. $\frac{27x^3 - 18x^2 + 9x}{9x}$

3. Simplify:

a. $\frac{21 \times 10^{16}}{4.2 \times 10^7}$

b. $\frac{\sqrt{4}}{\sqrt{5}}$

c. $5 - 6 \div 3 \times 2 + 7^2$

4. If the parentheses are removed from $(3m^2 - 5m) + (12m^2 + 7m - 10)$, is the new expression equivalent to the original? If the parentheses are removed from $(3m^2 - 5m) - (12m^2 + 7m - 10)$, is the new expression equivalent to the original? Show mathematical proof.

Thursday, Oct 11

1. If the base of a triangle is represented by $2x$ and the height by $(3 + 4x)$, what is the area in terms of x ?

2. Express the perimeter of a rectangle with sides of lengths $3y - 5$ and $4y + 2$.

3. A plane travels at a rate of $(x + 100)$ kilometers per hour. Represent the distance it can travel in $(x - 4)$ hours. [Hint: (rate)(hours) = distance]

4. If one side of a square is $x + 5$, write the polynomial that represents the:

a. Perimeter of the square

b. Area of the square.

c. Evaluate (a) and (b) when $x = 4$

5. Simplify the following expressions:

a. $\frac{(4x^3)(3x^2)}{6x}$

b. $(x - 3)^2$

c. $(3.2 \times 10^4)(2 \times 10^2)$

d. -3^0

e. $2^3 \cdot 2^9 \cdot 2^{-8}$

f. $\frac{4x^{-8}y^3}{8x^4y^8}$

g. $\frac{18x^3 - 54x^2 + 9x}{9x}$

h. $(8x^0)(3x^4)^2$

6. A square picture on the front page of a newspaper occupies an area of 24 in^2 . Find the length of each side in simplest radical form.

Friday, Oct 12

Begin to study for Test on Tuesday October 16. Topics Include

- ∞ Adding, Subtracting, Multiplying, Dividing Polynomials
- ∞ Laws of Exponents – Multiplying, Power to a Power, Zero, Negative Exponents
- ∞ Word Problems with polynomials
- ∞ Operations with Scientific Notation
- ∞ Old Topics:
 - Radicals and Set Notation
 - Properties of Real Numbers – Commutative, Associative, Distributive. . .

1. Simplify:

a. $(x+3)^2$

b. $\frac{(3x^2)(4x^{-5})^2}{12x^7}$

c. $\left(\left(x^{-2}\right)^3\right)^{-1}$

2. If the perimeter of a rectangular parking lot was represented by $12x + 4$, and the width was represented by $2x + 1$, what is the length of the parking lot in terms of x ?

3. The length of a side of an equilateral triangle is represented by $x-3$, what is the perimeter?

4. Kevin said that $-2x(4x-3) = -8x^2 - 6x$. Karla said that $-2x(4x-3) = -8x^2 + 6x$. Who is correct? Explain.

5. Subtract $12x^2 - 4x + 8$ from $15x^2 - 6$

6. If Set A = {Lab, Golden, Beagle, Mutt, Boxer, Collie}, Set B = {Doberman, Husky, Lab, Boxer}

a. Find $A \cup B$

b. Find $A \cap B$

c. Is Set A finite, or infinite?

7. Perform the indicated operations and simplify:

a. $(2\sqrt{18})(7\sqrt{6})$

b. $\frac{-10\sqrt{160}}{5\sqrt{8}}$

c. $12\sqrt{60} - 2\sqrt{135}$

8. Given the following diagram find:

a. The area of the larger rectangle

b. The perimeter of the smaller rectangle

c. The area of the shaded region

