NAME _____ **ALGEBRA – UNIT 1**

COHORT B

MONDAY, OCTOBER 5TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Adding & Subtracting Polynomials" as you complete the accompanying guided notes
- Complete Remote Check (make sure you do this AFTER you watch today's video lesson!)
- Complete **#1 thru #6** on *Homework Set #4*

ADDING & SUBTRACTING POLYNOMIALS

The **standard form** of a polynomial contains _____.

For example, the expression $2x^2 + 3x - x - 7$ simplifies to _____.

If a polynomial has more than one exponent, express it in standard form by writing its terms in _____ of degree. In other words, the exponents should go from _____ to _____.

For example, the polynomial $4 + 5a^3 - 2a^6 - 3a$ written in standard form is _____.

ADDING POLYNOMIALS:

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

2. $\left(\frac{1}{3}x+\frac{2}{5}y+\frac{1}{2}\right)+\left(-\frac{5}{6}x-\frac{3}{4}\right)$

3. The length of a rectangle is represented by $2x+3y$, and the width is represented by $3x-y$. In terms of *x* and *y*, what is the perimeter?

4. What must be added to $2x^2-5x-12$ in order to get $7x^2-x-18$?

SUBTRACTING POLYNOMIALS –

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

6. If $A = 3x^2 + 5x - 6$ and $B = -2x^2 - 6x + 7$, then $A - B$ equals

   (1) $-5x^2 - 11x + 13$

   (2) $5x^2 + 11x - 13$

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

   (4) $5x^2 - x + 1$

7. A company produces *x* units of a product per month, where *C* represents the total cost and *R* represents the total revenue for the month. The functions are modeled by $C = 300x + 250$ and $R = -0.5x^2 + 800x - 100$. The profit, *P*, is the difference between revenue and cost where $P = R - C$. What is the total profit, *P*, for the month?

   (1) $P = -0.5x^2 + 500x - 150$

   (2) $P = -0.5x^2 + 500x - 350$

   (3) $P = -0.5x^2 - 500x + 350$

   (4) $P = -0.5x^2 + 500x + 350$

What about this situation: Subtract 10 from 30.
How would you write that?

8. Subtract $7r^2 + 3r - 8$ from $10r^2 - 3r - 7$. Express the result as a trinomial.

9. Subtract $m^2 - 5m + 7$ from $m^2 - 3m - 4$. Express the result as a binomial.

TUESDAY, OCTOBER 6TH – IN-PERSON DAY

- Lesson: "Multiplying Polynomials"
- Complete **#7 thru #10** on *Homework Set #4*

MULTIPLYING POLYNOMIALS

MULTIPLYING MONOMIAL BY POLYNOMIAL:

1. $6x\left(3x^2 + 2x - 1\right)$

2. $\frac{1}{2}x^3(6x - 10)$

MULTIPLYING POLYNOMIALS:

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

4. $(a-3)(a+7)$

5. $(y+6)(y^2+y-2)$

6. $(x+3)(x-3)$

7. Find the product of $2x+3$ and $x-4$.

8. Find the product of $6n^2 - 2n + 7$ and $3n + 5$.

9. Fred is given a rectangular piece of paper. If the length of Fred's piece of paper is represented by $2x - 6$ and the width is represented by $3x - 5$, then the paper has a total area represented by

(1) $5x - 11$

(2) $6x^2 - 28x + 30$

(3) $10x - 22$

(4) $6x^2 - 6x - 11$

WEDNESDAY, OCTOBER 7TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Dividing Polynomials" as you complete the accompanying guided notes
- Complete Remote Check (make sure you do this AFTER you watch today's video lesson!)
- Complete **#11 thru #12** on *Homework Set #4*

DIVIDING POLYNOMIALS

The rule is:

1. $\frac{48x^{10}-32x^{7}+16x^{5}}{8x^{3}}$

2. $\frac{14x^{5}+28x^{4}-35x^{3}}{7x^{2}}$

3. $\frac{30x^{9}-50x^{6}+70x^{5}}{10x^{4}}$

4. $\frac{8x^{3}+6x^{2}-4x}{2x}$

5. $\frac{5x^{3}+2x^{2}-8x}{x}$

6. $\frac{65y^{3}+5y}{5y}$

THURSDAY, OCTOBER 8TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Translating Expressions & Equations" as you complete the accompanying guided notes
- Complete *GCQ #4* (Google Classroom Quiz)
- Remember, *Homework Set #4* is due tomorrow (Friday, 10/9)!!!

TRANSLATING EXPRESSIONS & EQUATIONS

ALGEBRAIC EXPRESSION –

KEY WORDS TO WATCH FOR WHEN TRANSLATING:

ADD	SUBTRACT	MULTIPLY	DIVIDE
sum	difference	product	quotient
more than	less than	of	
increased by	decreased by	double	
exceeds	fewer than	twice	
	reduced by	triple	

****** Be careful when using LESS THAN, FEWER THAN, SUBTRACTED FROM – they reverse the order!!**

Write an algebraic expression for each:

1. the sum of x and 7

2. the product of g and 10

3. r decreased by 2

4. 3 less than w

5. the product of $5r$ and s

6. twice x, decreased by 10

7. m exceeded by 5

8. 12 increased by the square of q

9. 3 fewer than 6 times n

10. 5 more than half of y

11. 4 less than the square of n

12. twice the quantity x plus y

13. one-third of c

14. three times the sum of p and q

15. 13 subtracted from half of r

16. one-fourth the difference of n and 16

ALGEBRAIC EQUATION –

IS means _____

Write an algebraic equation for each:

17. Twice x increased by 4 is 18

18. y is three more than half of x

19. m is 4 less than the square of n

FRIDAY, OCTOBER 9TH – IN-PERSON DAY

- Hand in *Homework Set #4*
- You will receive *Homework Set #5*. This assignment is due on Friday, October 15th
- Practice Day
- Complete **#1 thru #14** on *Homework Set #5*

MONDAY, OCTOBER 12TH – NO SCHOOL (COLUMBUS DAY)

TUESDAY, OCTOBER 13TH – IN-PERSON DAY

- You will have a Quiz today on Operations of Polynomials and Translating Expressions & Equations

WEDNESDAY, OCTOBER 14TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Combining Operations of Polynomials" as you complete the accompanying guided notes
- Complete Remote Check (make sure you do this AFTER you watch today's video lesson!)
- Complete **#15 thru #18** on *Homework Set #5*

COMBINING OPERATIONS OF POLYNOMIALS

1. Simplify: $(x-6)^2$

2. The expression $3\left(x^2-1\right)-\left(x^2-7x+10\right)$ is equivalent to

(1) $2x^2-7x+7$

(2) $2x^2+7x-13$

(3) $2x^2-7x+9$

(4) $2x^2+7x-11$

3. Which expression is equivalent to $2\left(3g-4\right)-\left(8g+3\right)$?

(1) $-2g-1$

(2) $-2g-5$

(3) $-2g-7$

(4) $-2g-11$

4. Write the difference $\left(9x^2-6x+27\right)-\left(x^2+8x-15\right)$ in standard form.

Multiply your previous answer by $\frac{1}{2}x^3$.

Divide your previous answer by x^2.

THURSDAY, OCTOBER 15TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Combining More Operations" as you complete the accompanying guided notes
- Complete *GCQ #5* (Google Classroom Quiz)
- Complete **#19 thru #22** on *Homework Set #5*
- Remember, *Homework Set #5* is due tomorrow (Friday, 10/16)!!!

COMBINING MORE OPERATIONS

1. If $C=2a^2-5$ and $D=3-a$, then $C-2D$ equals

(1) $2a^2+a-8$

(2) $2a^2-a-8$

(3) $2a^2+2a-11$

(4) $2a^2-a-11$

2. Simplify $(3x-1)(3-x)+4x^2+19$ and write the result as a trinomial.

3. When $(2x-3)^2$ is subtracted from $5x^2$, what is the result in standard form?

4. Write the result in standard form: $5(x-1)^2-3(4x+2)$

FRIDAY, OCTOBER 16TH – IN-PERSON DAY

- Hand in *Homework Set #5*
- You will receive *Homework Set #6*. This assignment is due on Friday, October 23rd
- Lesson: "Literal Equations"
- Complete **#1 thru #5** on *Homework Set #6*

LITERAL EQUATIONS
"TOP FIFTEEN" TOPIC

LITERAL EQUATION:

Take a look at the similarities between these two equations:

$4x + 10 = 22$ $\qquad\qquad$ $ax + b = c$

1. The volume of a rectangular prism can be calculated using the formula $V = lwh$. Solve for *h*, in terms of *l*, *V*, and *w*.

2. Boyle's law involves the pressure and volume of gas in a container. It can be represented by the formula $P_1V_1 = P_2V_2$. When the formula is solved for P_2, the result is

(1) $P_1V_1V_2$

(2) $\frac{V_2}{P_1V_1}$

(3) $\frac{P_1V_1}{V_2}$

(4) $\frac{P_1V_2}{V_1}$

3. The volume of a large can of tuna fish can be calculated using the formula $V = \pi r^2 h$. Write an equation to find the radius, *r*, in terms of *V* and *h*.

Determine the diameter, to the *nearest inch*, of a large can of tuna fish that has a volume of 66 cubic inches and a height of 3.3 inches.

4. The formula for the area of a trapezoid is $A = \frac{1}{2}h(b_1 + b_2)$. Express b_1 in terms of A, h, and b_2.

The area of a trapezoid is 60 square feet, its height is 6 ft, and one base is 12 ft. Find the number of feet in the other base.

MONDAY, OCTOBER 19TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "More Literal Equations" as you complete the accompanying guided notes
- Complete Remote Check (make sure you do this AFTER you watch today's video lesson!)
- Complete **#6 thru #9** on *Homework Set #6*

MORE LITERAL EQUATIONS

"TOP FIFTEEN" TOPIC

1. Using the formula for the volume of a cone, express r in terms of V, h, and π.

2. The formula for the sum of the degree measures of the interior angles of a polygon is $S = 180(n-2)$. Solve for n, the number of sides of the polygon, in terms of S.

3. The distance a free falling object has traveled can be modeled by the equation $d = \frac{1}{2}at^2$, where a is acceleration due to gravity and t is the amount of time the object has fallen. What is t in terms of a and d?

4. Solve the equation below for x in terms of a.

$$4(ax + 3) - 3ax = 25 + 3a$$

5. The formula for blood flow rate is given by $F = \frac{p_1 - p_2}{r}$, where F is the flow rate, p_1 the initial pressure, p_2 the final pressure, and r the resistance created by blood vessel size. Which formula can *not* be derived from the given formula?

(1) $p_1 = Fr + p_2$ (3) $r = F\left(p_2 - p_1\right)$

(2) $p_2 = p_1 - Fr$ (4) $r = \frac{p_1 - p_2}{F}$

TUESDAY, OCTOBER 20TH – IN-PERSON DAY

- Lesson: "Comparison & Coin Word Problems"
- Complete **#10 thru #15** on *Homework Set #6*

COMPARISON & COIN WORD PROBLEMS

COMPARISON Word Problems:

ALWAYS Let x be _____

1. James has a bag of candy containing chocolate bars and gum. The number of pieces of gum is three times the number of chocolate bars. He has 52 pieces of candy in all. How many pieces of gum and how many chocolate bars does James have?

2. At the last school concert, 150 students attended. There were 30 more girls than boys at the concert. How many were boys and how many were girls?

3. John has four more nickels than dimes in his pocket, for a total of $1.25. How many nickels does John have?

4. Arielle has a collection of dimes and nickels. The number of dimes is two less than the number of nickels. If she has a total of $5.95, find the number of *each* type of coin that she has.

WEDNESDAY, OCTOBER 21ST – REMOTE DAY

- ☐ Complete Today's Attendance Check-In by 1:00PM!!
- ☐ Watch the Video Lesson titled "Find the Number Word Problems" as you complete the accompanying guided notes
- ☐ Complete Remote Check (make sure you do this AFTER you watch today's video lesson!)
- ☐ Complete **#16 thru #17** on *Homework Set #6*

FIND THE NUMBER WORD PROBLEMS

1. Eight more than six times a number is four less than ten times the number. Find the number.

2. Guy and Jim work at a furniture store. Guy is paid \$185 per week plus 3% of his total sales in dollars, x, which can be represented by $185 + 0.03x$. Jim is paid \$275 per week plus 2.5% of his total sales in dollars, x, which can be expressed as $275 + 0.025x$. Determine the value of x, in dollars, that will make their weekly pay the same.

3. A gardener is planting two types of trees:

   Type *A* is three feet tall and grows at a rate of 15 inches per year

   Type *B* is four feet tall and grows at a rate of 10 inches per year

   Algebraically determine exactly how many years it will take for these trees to be the same height.

THURSDAY, OCTOBER 22ND – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Consecutive Word Problems" as you complete the accompanying guided notes
- Complete *GCQ #6* (Google Classroom Quiz)
- Remember, *Homework Set #6* is due tomorrow (Friday, 10/23)!!!

CONSECUTIVE WORD PROBLEMS

CONSECUTIVE INTEGERS:

LET statements:

CONSECUTIVE EVEN INTEGERS:

LET statements:

CONSECUTIVE ODD INTEGERS:

LET statements:

1. Find two consecutive integers whose sum is 25.

2. Find four consecutive even integers whose sum is 340.

3. A triangle has sides that are consecutive odd integers. If the perimeter of the triangle is 279 feet, find the length, in feet, of the shortest side of the triangle.

What is the length of the shortest side of the triangle, *in inches*?

FRIDAY, OCTOBER 23RD – IN-PERSON DAY

- Hand in *Homework Set #6*
- You will receive *Homework Set #7*. This assignment is due on Friday, October 30th
- Practice Day
- Complete **#1 thru #11** on *Homework Set #7*

MONDAY, OCTOBER 26TH – REMOTE DAY

- Complete Today's Attendance Check-In by 1:00PM!!
- Watch the Video Lesson titled "Unit 1 Study Guide" as you complete the accompanying guided notes. This is your study tool for the test.
- Complete Remote Check (make sure you do this AFTER you watch today's video lesson!)
- Complete **#12 thru #19** on *Homework Set #7*
- Remember, the Unit 1 Test is Tuesday, 10/27!!!!

UNIT 1 STUDY GUIDE

1. Mr. Stanton asked his students to write an algebraic expression on a piece of paper. He chose four students to go to the board and write their expression.

   Robert wrote: $4(2x+5)$
   Meredith wrote: $3y-7+11z$
   Steven wrote: $9w+2=20$
   Ann wrote: $8x^2-10x$

   Which student was *incorrect*?
   (1) Robert (2) Meredith (3) Steven (4) Ann

2. Which verbal expression can be represented by $2(x+5)$?
   (1) 5 more than 2 times x
   (2) twice x increased by 5
   (3) twice the difference of x and 5
   (4) twice the sum of x and 5

3. Express the sum of $3x^3 + x - 7$ and $x^3 + 10$.

4. Find the difference of $\left(a^2 + a - 3\right) - \left(3a^2 - 5\right)$.

5. Subtract $5x^2 + 2x - 11$ from $3x^2 + 8x - 7$ and express your answer as a trinomial.

6. Fred is given a rectangular piece of paper. If the length of Fred's piece of paper is represented by $5x - 1$ and the width is represented by $2x + 3$, then what is the total area of the paper, in standard form?

7. Divide: $\dfrac{63x^2 + 7x}{7x}$

8. The formula for the volume of a cone is $V = \dfrac{1}{3}\pi r^2 h$. Write an equation to find the radius, *r*, in terms of *V* and *h*.

Determine the radius, to the *nearest inch*, of a cone that has a volume of 45 cubic inches and a height of 2.7 inches.

9. Haley is planting two types of trees.

Type *A* is 18 inches tall and grows 10 inches per year.

Type *B* is 30 inches tall and grows 4 inches per year.

Algebraically determine exactly how many years it will take for these two trees to be the same height.

10. Ace Construction built 5 less than twice the number of houses that Ben's Construction built. If the total number of houses built by both firms was 115, how many did each build?

11. Austin has 6 more quarters than nickels. If he has a total of $3.90 in quarters and nickels, how many of each coin does he have?

12. Find two consecutive odd integers whose sum is 108.

TUESDAY, OCTOBER 27TH – IN-PERSON DAY

- Unit 1 Test