7th Grade Assignment – Week #20

Group Assignments:

For Tuesday:

- See how much you can do with ***Algebra* Sheet #6**.

For Thursday:

- See how much you can do with ***Algebra* Sheet #7**.

Individual Work

- Finish the problems on **Percents Sheet #4.** (See last week's assignment - Last week you should have done every other problem.)
- *Oral Presentations.* See Week #18's assignment for details.
- *Algebra Practice.* Complete any leftover problems from ***Algebra* Sheets #6 and #7**. If you need extra practice in order to prepare for the test, then you can do **Sheet #8**, as well.
- *Main Lesson Book Work.*
    - Create a main lesson book page titled "Equations". In this essay, you should elaborate on the following points (of course, in your own words):
        - What is an equation?
        - What is the purpose of solving an equation?
        - What is the "goal" for solving an equation?
        - What are the steps for solving a multi-step equation (See this week's lectures).
        - What is the *Golden Rule* of equations?
        - Give an example of solving a (fairly complicated) multi-step equation.
    - Write an essay on the history of algebra, especially focusing on the biography of Mohammad ibn Musa al-Khwarizmi, who is known be some as the father of algebra. Note for the parent: It would be best to either present orally to your 7th grader, or provide them with some reading material.

Algebra – Sheet #6

Formulas

Euclid's Formula for Perfect Numbers is given by the formula:

$P = (2^{(N-1)})\cdot(2^N - 1)$,

where P is a perfect number only if $(2^N - 1)$ is a prime number.

1) Calculate the first four perfect numbers by using the above formula, and putting in N=2, and then N=3, and then N=4, etc. Don't forget to check that $(2^N - 1)$ is prime. (Show your work on a separate sheet.)

Signed Numbers

Simplify.

2) $-5 - 10$

3) $-4 + 12$

4) $-9 + 4$

5) $6 - 14$

6) $(-5)(-8)$

7) $(-5)(3)$

8) $(-18)\div(-6)$

9) $\frac{-18}{-6}$

10) $(18)\div(-6)$

11) $\frac{35}{-5}$

12) $-4 - -10$

13) $-5 - +8$

14) $-12 + 25 - 6 - 3$

15) $5 - -6 + -8 - +7$

Expressions

Simplify by combining like terms.

16) $7X - 8 + 2X$

17) $7X - 8 + 2$

18) $7 - 3X + 5 - 6X$

19) $X - 5 + 5X + 2$

20) $7 - X - 3 + 6X - 1$

21) $-7X + 9 + 5X - 2X$

22) $Y - 7 + 8 - 4A - 3Y + X$

Solving Equations

Solve each equation by getting X alone. Show what is done to each side. Check that your answers are correct.

23) $5X = 40$

24) $5X = -40$

25) $-5X = -40$

26) $-5 + X = 40$

27) $5X + 1 = 3X + 9$

28) $7X + 5 = 4X + 26$

29) $5X - 7 = X + 3$

30) $8X + 19 = 3$

31) $-7X + 4 = -31$

32) $X-7+6X = 8-X+9$

Algebra – Sheet #7

Signed Numbers

Simplify.

1) $-8 + 13$

2) $20 - 50$

3) $(5)(-9)$

4) $(-4)(-6)$

5) $(-28) \div (-4)$

6) $(16) \div (-2)$

7) $\frac{16}{-2}$

8) $-5 \cdot \frac{-3}{5}$

9) $\frac{3}{4} \cdot \frac{-16}{27}$

10) $5 - -9$

11) $-8 - 2 + 6 - 7 + 4$

12) $-5 + -9 - +7 - -2$

Expressions

Simplify by combining like terms.

13) $7X + 6 - 12X$

14) $-6 - 7X - 8$

15) $-4X - 5 - X + 10$

16) $8B + 4A - B - 4$

Solving Equations

Solve each equation by getting X alone. Show what is done to each side. Check that your answers are correct.

17) $4X = 28$

18) $3X = -21$

19) $X + 6 = 2$

20) $X - 4 = 11$

21) $-4X = 12$

22) $X \div 3 = 15$

23) $\frac{X}{3} = 15$

24) $-8X = -4$

25) $5X - 4 = 2X + 23$

26) $2X + 11 = 9X - 3$

27) $6X - 5 + 2X = 17 + 15X - 77$

28) $4X - 5 - X - 3 = -2X + 4 + 9X$

29) *Challenge!* $-18X - 5 + X + 4 + 38X - X - 5 = 3X - 18 - 5X + 30 + 9X - 5$

Algebra – Sheet #8

Signed Numbers

Simplify.

1) $-8 - 3$

2) $34 - 42$

3) $(4)(-7)$

4) $(-8)(-3)$

5) $(40) \div (-4)$

6) $(-20) \div (-5)$

7) $\frac{-20}{-5}$

8) $6 \cdot \frac{7}{-15}$

9) $\left(-\frac{4}{5}\right) \cdot \left(-\frac{5}{6}\right)$

10) $-7 - -10$

11) $-6 + 9 + 4 - 7$

12) $-2 - -7 + -8$

Solving Equations

Solve each equation by getting X alone. Show what is done to each side. Check that your answers are correct.

13) $-5X = -40$

14) $X + 7 = -2$

15) $6X = -42$

16) $X \div 4 = 8$

17) $\frac{X}{4} = 8$

18) $7X - 21 = 3X - 9$

19) $8X + 3 - 5X = 7 - 4X - 32$

20) $X - 8 - 6X = -7 + X - 3$

21) $6X - 7 = 2X - 10$

22) *Challenge!*

$\frac{1}{6}X + \frac{2}{3} - \frac{3}{4}X = -\frac{7}{10} + \frac{2}{3}X - \frac{2}{5}$

23) *Challenge!*

$7X + 4 - X - 8 - 11X - 14 = -12 + 49X + 23 - 11 - 52X$

24) *Challenge!*

$-X - 2\frac{2}{3} - 12X + 13 + 5X - 5\frac{1}{2} = 13\frac{2}{3}X + 5 - \frac{3}{4}X - 21\frac{1}{6} - 17\frac{5}{12}X$