8th Grade Assignment – Week #28

Important Notes:

- In this *Algebra* unit you should not use your calculator (except in rare circumstances). Also, in general with algebra, fractions are preferred over decimals.
- I have included *Algebra* **Practice Sheet #6** at the end of this document. You should bring it to your Friday tutorial session. Do not do the problems on Sheet #6 before the tutorial session!

Group Assignments: *For Tuesday and Thursday*:

- Look at *Algebra* **Practice Sheet #3** and **Practice Sheet #4**, and choose the more difficult ones to do in your group work. (The rest of the problems should be done individually.)
- *Puzzle!* **Jill's Bike Ride**.
  Jill went on a bike ride from Brownsville to Manson passing through Gilpin along the way. After 40 minutes, she saw a sign that read: "It is half as far from here to Brownsville as it is from here to Gilpin". 24 miles further along the route, she had finished all but 1/5 of her trip, and it was there that she saw another sign, this time reading: "It's half as far from here to Manson as it is from here to Gilpin". How far is it from Brownsville to Manson? (Assume that her speed is constant.)
- *Puzzle!* **Arranging Points**
  How can ten points be arranged on a page such that five straight lines can be drawn, with each line having four points on it?

Individual Work

- Whatever problems you didn't complete in your group from *Algebra* **Practice Sheet #3** and **Sheet #4**, you should do on your own.

Algebra – Practice Sheet #3

Signed Numbers
Simplify.

1) $(-6)(-7)$

2) $-6 - 7$

3) $(-3)(8)$

4) $\frac{-30}{-6}$

5) $\frac{30}{-6}$

6) $\frac{-30}{6}$

7) $5 + -9$

8) $-15 - -5$

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

Order of Operations
Simplify.

10) $10 - 7 \cdot 2$

11) $8 \cdot 2 + 6 \div 4$

12) $18 \div 12 \div 4$

13) $7 - 4 \cdot 2^3 + 50$

Laws of Exponents
Fill-in the boxes with an exponent or coefficient.

14) $3^2 \cdot 3^4 \rightarrow 3^{\square}$

15) $5^3 \cdot 5^7 \rightarrow 5^{\square}$

16) $x^4 \cdot x^5 \rightarrow x^{\square}$

17) $(3^2)^4 \rightarrow 3^{\square}$

18) $(7^3)^3 \rightarrow 7^{\square}$

19) $(x^5)^2 \rightarrow x^{\square}$

20) $3x^3 + 5x^3 \rightarrow \square x^{\square}$

21) $8x^4 - 6x^4 \rightarrow \square x^{\square}$

Distributive Property
Simplify.

22) $5(3X + 2)$

23) $-3(4X - 5)$

24) $5 + 3(X - 7)$

25) $7 - 2(4X + 3) + X$

Equations
Solve each equation by getting X alone. Show what is done to each side.

26) $-4X = 28$

27) $-3X = -21$

28) $X + 6 = -10$

29) $X - 6 = 10$

30) $X \div 3 = 21$

31) $\frac{X}{3} = 21$

32) $\frac{1}{3}X = 21$

33) $\frac{1}{3} + X = 21$

34) $-12X = -4$

35) $\frac{3}{5}X = \frac{4}{5}$

36) $\frac{3}{5} + X = \frac{4}{5}$

37) $-\frac{5}{12}X = \frac{5}{8}$

38) $2(2X + 9) = 4$

39) $-7X + 35 = -2X$

40) $6X - 7 = 8 - 3(X - 4)$

41) $1\frac{1}{3}X - 3 = 5X + 4\frac{1}{2}$

Algebra – Practice Sheet #4

Simplify.

1) $X + X + Y + Y$

2) $7X - F + X - B - F$

3) $-3X - 7 - X + 9$

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

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

6) $(-4)^2$

7) $(-4)^3$

8) $(-4)^4$

9) $30 \div 8 \div 4$

10) $10 - 8 \cdot 10^3 \div 4 \cdot 2$

11) $8(3X + 5)$

12) $-4(2X - 7)$

13) $6 - 3(2X - 5) + 8X$

14) $x^3 \cdot x^4$

15) $y^2 \cdot y^5$

16) $(x^2)^3$

17) $7x^2 + 4x^2$

18) $8x^5 - 3x^2$

19) $2^5 \cdot 2^3$ equals
(a) 2^{15} (b) 2^8 (c) 4^8

20) $2^5 \cdot 3^4$ equals
(a) 6^{20} (b) 6^9 (c) neither

21) $(9^4)^2$ equals
(a) 9^8 (b) 9^{16} (c) neither

22) Which fraction isn't equal to the others?
(a) $\frac{3}{-7}$ (b) $\frac{-3}{7}$ (c) $\frac{-3}{-7}$ (d) $-\frac{3}{7}$

Evaluate each expression given
$X = 3$; $Y = -4$; $Z = -10$

23) $X^2 + 2Y + 3Z$

24) $Y^2 - 5Z$

25) $7X + 5YZ - 3Z$

Solve each equation.

26) $-5X = -30$

27) $X + 10 = -2$

28) $-X - 5 = -1$

29) $-6X + 3 = -15$

30) $\frac{X}{5} = -8$

31) $\frac{3}{5}X = \frac{9}{10}$

32) $\frac{3}{5} - X = \frac{9}{10}$

33) $4X = \frac{2}{5}$

34) $\frac{8}{9} = \frac{12}{X}$

35) $\frac{8}{15X} = \frac{12}{5}$

36) $\frac{4}{X} = \frac{9}{X-5}$

37) $7X - 67 = -3X - 7$

38) $-2X - 11 = 9X - 3$

39) $4X - 8 - 6X = -7 - 3X - 3$

40) $4X + 2(X - 3) = 10 - 6(3X + 4)$

Algebra – Practice Sheet #6 For Friday's Tutorial Session

Simplify.

1) $4 + 3 \cdot 9$

2) $6 - 5 \cdot 3 + 20$

3) $7 \cdot 3 + 12 \div (9 - 10)$

4) $30 - 10 \cdot 3^2$

5) $c^4 \cdot c^5$

6) $c^3 \cdot x^2$

7) $x^2 \cdot x^5$

8) $(x^2)^5$

9) $(x^5)^2$

10) $5x^7 + 8x^7$

11) $x^3 - 5x^3$

12) $5x^4 + 3x^3$

Evaluate each expression
given that $x = 3$; $y = -4$.

13) $5y - 6x + 3$

14) $y^2 - xy + 4$

Solve each equation.

15) $6X = -\frac{4}{5}$

16) $-8X = -3$

17) $-2\frac{2}{3}X = -\frac{4}{7}$

18) $2\frac{2}{3} - X = -\frac{4}{7}$

19) $-6X - 11 = -X - 14$

20) $\frac{-5}{3X+1} = \frac{2}{2X-3}$

21) $-8X + 3 - 5X = 7 + 2(X - 7)$

22) $\frac{2}{9}(3X - \frac{1}{2}) = \frac{1}{5}X + \frac{1}{3}$

23) $\frac{3}{5} + \frac{1}{2}(3X - 1) = \frac{2}{5}(\frac{3}{2}X - 2) - 1\frac{1}{2}$

24) $8 + 2(3X - 4) - 3X - 4(X + 7) = 5 - 3(X - 6) + 3X + 8(3 - 2X)$

25) *Challenge!* $\frac{2}{5}X - 8\frac{1}{8} - \frac{3}{4}(\frac{14}{15}X - 5\frac{5}{9}) = 2\frac{7}{10}X - 2\frac{5}{6} + \frac{3}{4}(X + 5\frac{1}{6})$