7th Grade Assignment – Week #19

Individual Work

- Do every other problem on **Percents Sheet #4.** (You will do the rest of the problems on this sheet next week.)
- *Flashcards!* Keep practicing the "Percents to Fraction Conversion Flashcards".
- *Oral Presentations.* See previous week's assignment for details.
- *Main Lesson Book Work.*
    - Write an essay titled "Signed Numbers". In this essay, you should elaborate on the following points (of course, in your own words):
        - What are signed numbers? (Positive and negative numbers)
        - Give an explanation and some examples of how to add/subtract (combine) signed numbers.
        - What are the rules for multiplying and dividing signed numbers? Give examples.
    - Write an essay titled "The Scale Puzzle". In this essay, you should elaborate on the following points (of course, in your own words):
        - What was the scale puzzle?
        - How did we solve it? You should give drawings for each step.
        - What does the scale puzzle have to do with algebra? (This will be become clear after the next lecture.)

Group Assignments:

For Tuesday:

- See how much you can do with ***Algebra*** **Sheets #2 and #3** (p104-105). The "Formula" problems are the least important, so do them last, or skip them altogether. Any of the rest of the problems that aren't completed during your groupwork can be completed afterwards individually.

For Thursday:

- See how much you can do with ***Algebra*** **Sheets #4 and #5** (p106-107). Once again, skip the "Formula" problems.

Percents – Sheet #4

1) Convert to a percent. (Hint: Try multiplying the numerator and denominator.)

a) $^{87}/_{1000}$

b) $^{3}/_{20}$

c) $^{21}/_{25}$

d) $^{1}/_{6}$

e) $^{3}/_{5}$

f) 0.8

g) 0.61

h) 0.08

i) 0.134

2) Convert to a fraction.

a) 35%

b) 20%

c) 62½%

d) 90%

e) 28%

3) Show your work for the problems that you can't do in your head.

a) What is 6% of 13?

b) What is 12.5% of 48?

c) What is 50% of 32?

d) What is 17% of 3200?

e) What is 33⅓% of 3600?

f) What is 300% of 55?

g) What is 5.3% of 200?

h) 12 is what percent of 36?

i) 12 is what percent of 15?

j) 12 is what percent of 32?

k) 12 is what percent of 72?

l) 15 is 20% of what number?

m) 8000 is 25% of what number?

n) 400 is 12½% of what number?

o) What is 80% of 6000?

p) What is 25% of 80?

q) What is 41% of 100?

r) 54 is 40% of what number?

s) 6 is what percent of 60?

t) 9 is what percent of 24?

4) Quickly Estimate.

a) What is 11% of 690?

b) What is 36% of 258?

c) $3.08 is what percent of $16.50?

d) What is 82% of 347?

5) Increase/decrease problems.

a) What is 7000 increased by 6%?

b) What is 7000 decreased by 6%?

c) 16 to 28 is what percentage increase?

6) What do you end up at when 200 is increased by 10% and then that result is decreased by 10%?

7) Tax and discount.

a) How much do you have to pay for a shirt marked at $28 if there is a 5.3% tax rate?

b) A jacket normally listed for $52.50 is on sale for a 35% discount. What is the new discounted price?

c) Lenny paid $86.51 for a jacket marked at $82.00. What was the percentage tax rate?

Mental Math

8) $52^2 =$

9) $59^2 =$

10) $71 \cdot 79 =$

11) $1800 \div 45 =$

12) 15% of $6200 =

13) $110 \cdot 107 =$

14) $414 - 395 =$

15) $26 \div 999 =$

Review

16) $\frac{7}{80} + \frac{11}{120}$

17) $(0.025)^2$

18) Division. Leave the answer as a mixed number. $2384 \div 693$

Algebra – Sheet #2

Formulas

1) At Bob Rent-a-Car (see previous sheet), what is the cost of renting a car for 20 days and 700 miles?

2) Find the distance that an object falls after being dropped for 4 seconds.

3) *Gauss's Formula* for summing together a sequence of numbers is:

$\mathbf{S = \frac{N}{2} \cdot (F+L)}$, where F is the first number, L is the last number, and N is the number of numbers.

Find the sum of each sequence of numbers.

a) 40+41+…+50

b) 300+301+…+700

Signed Numbers

Simplify by combining the signed numbers. If you get stuck, think of a checking account.

4) 5 – 8

5) – 8 + 5

6) 13 – 9

7) – 9 + 13

8) – 3 + 8 – 2 – 7 + 9

9) 7 – 18 + 10 – 13 + 4

10) – 7 – 5 – 9

11) – 9 + 100

12) 46 – 70

13) – 46 – 70

14) $\frac{3}{8} - \frac{7}{8}$

15) $-\frac{3}{8} + \frac{4}{5}$

16) $-\frac{5}{9} - \frac{4}{7}$

Expressions

Simplify by combining like terms.

17) 5X + 9X

18) 9X + 5X

19) 6X – 4X

20) – 4X + 6X

21) 3X + 5X + 6X

22) 6X + X

23) 3X – 5X

24) 8X + 4Y + 6Y – 3X

25) 8X + 4 + 6 – 3X

Equations

Solve each equation, by finding the value for X that makes the equation balance.

26) X = 5·3

27) 6X = 24

28) X + 12 = 15

29) X + 12 = 7

30) X – 10 = 4

31) X – 10 = –4

32) X – 10 = –14

Algebra – Sheet #3

Formulas

1) Find the sum of 213+214+…+262.

2) The *temperature conversion formulas* are:

$$C = \frac{5}{9} \cdot (F - 32)$$

$$F = \frac{9}{5} \cdot C + 32$$

Use these formulas to…

a) Convert 25°C to Fahrenheit.

b) Convert 30°C to Fahrenheit.

c) Convert 86°F to Celsius.

d) Convert 50°F to Celsius.

Signed Numbers

Simplify.

3) –7 + 9

4) 11 – 19

5) – 19 + 11

6) 9 – 20 –4 + 33 – 7

7) – 9 – 15 – 2

8) $\frac{2}{5} - \frac{2}{3}$

9) $-\frac{3}{13} - \frac{5}{13}$

10) (5)(9)

11) (–5)(–9)

12) (–5)(9)

13) (5)(–9)

14) (–2)(15)

15) (–6)(–7)

16) (3)(–10)

17) (–120)(–110)

Expressions

Simplify by combining like terms.

18) 6X + 21X

19) 2X – 7X

20) – 7X + 2X

21) – 4X – 6X

22) 3X + 5Y + 6X

23) X + X

24) 4Y + 8X – Y – 13X

25) – 9X – 4 – 12 – 3X

Equations

Solve each equation. Always check that your answer is correct.

26) X + 1 = 7

27) X – 1 = 7

28) 5X = 45

29) X ÷ 4 = 20

30) X – 10 = –6

31) X + 5 = –3

32) X÷3 = 12

33) 2X = 11

34) Use Guess and Check!
2X + 5 = 19

Algebra – Sheet #4

Formulas

1) Convert 104°F to Celsius.

2) Convert 5°C to Fahrenheit.

3) Convert 5°F to Celsius.

4) Convert 12°C to Fahrenheit.

5) Convert –13°F to Celsius.

6) Convert –20°C to Fahrenheit.

7) Convert –40°F to Celsius.

Signed Numbers

Simplify.

8) $-9+13$

9) $-9-13$

10) $23-32$

11) $-32+23$

12) $(3)(6)$

13) $(3)(-6)$

14) $3-6$

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

16) $-3+6$

17) $(-3)(-6)$

18) $-3-6$

19) $(-15)\div(-3)$

20) $(15)\div(-3)$

21) $\frac{15}{-3}$

22) $7--4$

23) $5-+9$

24) $-4--6$

25) $-7-(-3-5)$

Expressions

Simplify by combining like terms.

26) $5X+7X$

27) $3A+6B-8A$

28) $9+5X-4$

29) $Y+4+X-12-5X+Y$

30) $3X-73+10X$

31) $5X+13-5X-2$

32) $5X-8Y-X+6$

33) $-7+X-8-4X$

One-Step Equations

Solve each equation by getting X alone. Show what is done to each side. Check your answers with the previous sheet.

Example: $X+7=10$

$-7 \quad -7$

$X = 3$

34) $X+1=7$

35) $X-1=7$

36) $5X=45$

37) $X\div 4=20$

38) $X-10=-6$

39) $X+5=-3$

40) $X\div 3=12$

41) $2X=11$

Algebra – Sheet #5

Formulas (See previous sheets for formulas.)

1) At Bob Rent-a-Car, what is the cost of renting a car for 15 days and 1000 miles?

2) Find the distance that an object falls after being dropped for 1½ seconds.

3) Convert 20°C to Fahrenheit.

4) Convert 20°F to Celsius.

5) Find the sum of 8+9+10+…+67.

Signed Numbers

Simplify.

6) $-2+9$

7) $-5+1$

8) $-5-1$

9) $19-33$

10) $(5)(-7)$

11) $5-7$

12) $(-3)(8)$

13) $-3+8$

14) $(-4)(-3)$

15) $-4-3$

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

17) $(-14)\div(2)$

18) $\frac{-14}{2}$

19) $(-14)\div(-2)$

20) $\frac{-14}{-2}$

21) $10--8$

22) $9-+2$

23) $9+-2$

24) $-12--5$

25) $-7--3+-5-+4$

Expressions

Simplify by combining like terms.

26) $X+X+X+A+A$

27) $7A-5Y+8-A+12Y$

28) $4+X-5B-5X+7+X$

29) $X-6Y+5-X-5+8Y$

30) $8X-7-13X-8$

31) $-3X-2-X+9$

32) $-X+5+6X-8$

One-Step Equations

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

33) $X+5=8$

34) $X+12=8$

35) $X-7=10$

36) $X-8=-2$

37) $3X=21$

38) $X\div 10=7$

39) $X+9=-4$

40) $X\div 5=9$

41) $2X=8$

42) $\frac{1}{2}X=8$