6th Grade Assignment – Week #24

Individual Work: As always, do what you can!

- During Monday's lecture, we started a 30-scratch game using the magic numbers 3, 5, 6, 7. We didn't figure out how to get anything to work out to 5, 6, 12, 13, 17, 18, 29. See if you can find solutions to any of these numbers.
- If you haven't done so already, compete the table (with all the factors) for the 5th perfect number, as given in the lecture, and shown here. Remember that when you are done, the top right number should be the fifth perfect number. Warning! There are a lot of very large numbers here!

- Do as much as you can with Sheet #20 in the workbook. Do not do problems #34 and #42, unless you really want to. Also, problem #44 should be started in your group work.

Group Assignments: Work on the below problems on Tuesday or Thursday, as desired.

1) (**Do this one first**!) With problem #44 on Sheet #20 in the workbook…
   a) Figure out the percentages for each of the four categories. In other words, what percentage of the students get to school by bus? by car? by walking? by other means?
   b) Given each of the above four percentages, calculate how much of an angle each one must have in the pie chart. For example, if it were 25%, the angle would need to be 25% of 360°, which is 90°. Likewise, if it were 40%, the angle would need to be 40% of 360°, which is 144°.
   c) The rest of the pie chart (for problem #44) can be completed as part of individual work.
2) *30-Scratch!*
   - As explained in the lecture, play the game 30-Scratch.
   - This time, use the Magic Numbers 2, 5, 7, 8.
   - See how many numbers the whole group together can get in 20 minutes.
   - Perhaps, start by having everyone working separately for 7 minutes, trying to get as many numbers as possible. Then share your results. Then try together to find ways to get the numbers that nobody has gotten so far.
3) *Perfect Numbers*. Write down all the factors of the fourth perfect number (8128), and then show it is perfect by adding up all the factors.
4) *Puzzles!*
   a) The organizer of a race notices that if she divides the total number of racers into groups of 4, there are 3 left over, and if she divides them into groups of 5, there are 3 left over. How many racers are there? (There is more than one possible answer.)
   b) Cathy said to her friend, "Fifteen minutes ago, it was twice as many minutes after 4 o'clock as it is now before 5 o'clock." What time was it when Cathy said that?

6th Grade Math – Sheet #20

Do it in your head.

1) $160{,}000 \div 2000$
2) $8.55 \cdot 4$
3) $1110 \cdot 1080$
4) $6043 - 4996$
5) $9999 \cdot 7$
6) $999 \cdot 18$
7) $6400 \cdot 5$
8) $6400 \div 5$
9) $15 \cdot 2$
10) $16 \cdot 4$
11) $15 \cdot 3$
12) 18^2
13) 4^4
14) 2^3
15) 2^{10}

Convert to a percent.

16) ½
17) $^4/_5$
18) $^3/_8$
19) 0.3
20) 0.736

Convert to a fraction.

21) 75%
22) 23%
23) 16%
24) 2%

Fractions.

25) Convert to a fraction.
   a) 0.893
   b) 0.875
   c) $0.8\overline{3}$
   d) 0.00025
   e) 0.0268
   f) $0.\overline{162}$

26) $3\frac{5}{6} \cdot 100$

27) $\dfrac{6\frac{2}{3}}{4}$

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

29) $68\frac{2}{15} - \frac{5}{6}$

30) $\left(4\frac{1}{2}\right)^3$

31) What is $^2/_5$ of $6\frac{1}{4}$?

Decimals.

32) $38.7 - 0.0914$

33) $(0.0052)^2$

34) Convert to a fraction.
$0.049\overline{24}$

Measurement.

35) 6 pints is how many quarts?

36) 6 pints is how many gallons?

37) 120 fluid ounces is how many pints?

38) 279 inches is how many feet?

39) 10½ tons of compost is to be divided evenly between 60 gardens. How many pounds of compost does each garden get?

Calculating a percentage of a number.

40) Use the easiest method. What is…

a) 10% of 940?

b) 1% of 940?

c) 9% of 250?

d) 80% of 45?

e) 25% of 12000?

Determining the percentage.

41) Review the example from the previous worksheet, and then answer these questions:

a) 60 is what percent of 150?

b) 180 is what percent of 480?

c) 21 is what percent of 25?

d) 47 is what percent of 120?

Increase/Decrease.

42) a) What is 300 increased by 50%?

b) What is 60 increased by 20%?

c) What is 2000 increased by 15%?

Area and Perimeter.

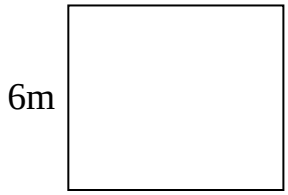
43) Calculate the area and perimeter of each rectangle.

a)

Perimeter =

Area =

b)



Perimeter =

Area =

Pie Charts

44) At Happy High School 250 people were surveyed about how they usually get to school. The results were:

120 by bus
55 by car
45 by walking
30 by other means

Now, review the pie chart from the previous worksheet. Construct a similar pie chart, in the space below, that uses the data from the above survey, where each of the pie pieces are shaded in using a different color. The angles of the pie pieces should be calculated exactly and constructed using a protractor.