

## 5<sup>th</sup> Grade Assignment – Week #23

### Individual Work

- *Egyptian Rope!*

Important: Do the following exercise before Thursday's group work meeting. Note that the instructions do not include everything you need to do. You'll have to think carefully as you proceed!

(1) Find a rope that is 12 meters long. Find a way to make marks on the rope every one meter. You can also use tape to mark the rope. Now make larger marks 3m from one end and 4m from the other end. This means that there should be 5m between the two large marks.

(2) Form a triangle with the rope such that two of the corners of the triangle are at the two large marks, and so that the ends of the rope come together to form the third angle of the triangle. All three sides of the triangle should be tight and straight. As long as everything has been done properly, the result should be a right triangle, where the right angle is where the ends of the rope come together.

The Egyptians used this method to make right angles. Show that if one of the large marks is moved by one meter, then you no longer get a right angle.

(Note for the parent: This also serves as a prelude to the Pythagorean Theorem in seventh grade.)

(3) You will now make a large rectangle (20m by 30m, if possible) using the rope. It may be best to do this on a large, fairly flat field. Mark the first corner of the rectangle by putting a stake at one location. Use the rope to measure out 20m, and then put a stake down to mark the second corner of the rectangle. Now use the rope to create a right angle, and then figure out a way to then measure out 30m in order to locate and mark the third corner of the rectangle. Do the same to locate the fourth corner of the rectangle (20m from the third corner). Although we have located the four corners of the rectangle, we now need to check to see how accurate we have been. Pretend for a moment that you don't know where the first corner of the rectangle is located. At the last corner you located (the fourth corner), make another right angle, and then measure out 30m. Did you return exactly to the first location? How much error did you have?

### Group Assignments:

*For Tuesday.*

#### **Word Problems**

- 1) If an apple weighs 6 ounces, how many apples are there in 9 pounds?
- 2) If 3 pounds of apples cost \$7.20, what is the cost for 5 pounds of apples?
- 3) Given what you learned from the first two above problems, what is the cost for one apple?

#### **Puzzles!**

- 4) Find two numbers that subtract to 6 and multiply to 216.
- 5) Find two numbers that add to 40 and multiply to 391.

*For Thursday*

- 1) Discuss how the Egyptian rope exercise worked for you. What was hard about it? How accurate were you? Why do you think the Egyptians needed to make right angles?
- 2) *Puzzle!* What is the least number of children someone could have such that every child would have at least two brothers and at least two sisters?
- 3) *Puzzle!* Frank has 25 coins (quarters and nickels only) worth \$3.45 in his pocket. How many of each type of coin does he have?
- 4) *Puzzle!* Lisa is having a party for 80 guests. She figures that, on average, each person will drink about 6 fluid ounces of juice. How many gallons of juice does she need to buy for her party?

## (More) Individual Work

### *Word Problems.*

- 1) If 15 apples are divided evenly between 6 people, how much does each person get?
- 2) If 2 apples are divided evenly between 6 people, how much of an apple does each person get?
- 3) If 5 pineapples cost \$17, how much does one pineapple cost? How much do 3 pineapples cost?
- 4) If 4 baseballs weigh 560 grams, how much do 25 baseballs weigh? (Give your answer both in grams and in kg.)

### *Four Processes.*

5) 
$$\begin{array}{r} 6263 \\ 3547 \\ 3451 \\ 2946 \\ 2729 \\ + \underline{262} \end{array}$$

6)  $645 - 329$

7)  $5032 - 3078$

8)  $26 \times 74$

9)  $364 \times 478$

10)  $948 \div 4$

11)  $5539 \div 12$