

MathLinks

GRADE 6 TASKS Fraction, decimal, percent

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AN OLD MEASUREMENT SYSTEM

fractions on a number line

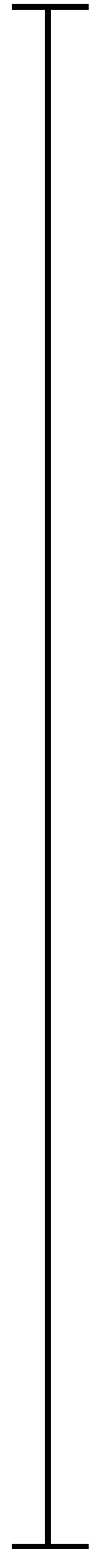
A native system of weights and measures was used in [Imperial Russia](#) and after the [Russian Revolution](#), but it was abandoned in 1924 when the [Soviet Union](#) adopted the [metric system](#).

Below are some common units of measurement for lengths in this system.

Unit	Translation	Units
Liniya	Line	$\frac{1}{10}$ in.
Dyuim	Inch	1 in.
Vershok	Tip or Top	$1\frac{3}{4}$ in.
Piad	Palm	7 in.
Fut	Foot	1 ft.
Arshin	Yard	$2\frac{1}{3}$ ft.

Let the line segment to the right represent exactly 1 arshin.

- Copy the line segment on another piece of paper.
- Clearly label all six of the units in the chart on your line segment.
- Explain your reasoning for each placement. In each description, explain whether you feel the placement is very accurate or a rougher estimate.
- Explain why you chose to use the tools you did.



THE DELI PROBLEM

fractions

A well-known mathematics educator, Ruth Parker, tells this true story of her efforts to eat properly. One day Ruth went to a local market where she asked for $\frac{1}{4}$ lb of turkey at the deli, the correct amount of protein for her eating plan. The deli lady cut her 3 slices of turkey and weighed them. Each slice was approximately the same shape, thickness, and size, and they totaled $\frac{1}{3}$ of a pound. Since she was in a hurry, she asked the lady to wrap them up, even though it was more than she wanted. She paid for them and was on her way.

When she began to eat the turkey, she discovered she had a problem. How much of the turkey should she eat so that she will eat $\frac{1}{4}$ of a pound...the correct amount for her eating plan?

Solve this problem two different ways. Explain your thinking clearly.

THE CRACKER BOX PROBLEM

fractions

There was a box of crackers on the table. Katie was hungry because she hadn't had breakfast, so she ate half the crackers. Then Myron came along and noticed the crackers. He thought they looked good, so he ate a third of what was left in the box. Gina came by and decided to take a fourth of the remaining crackers with her to her next class. Then Nancy came dashing up and took a cracker to munch on. When Chelsea looked at the cracker box, she saw that there were two crackers left. "How many crackers were there in the box to begin with?" she asked Katie.

Explain the answer to Katie.

MY INCOME AND EXPENSES

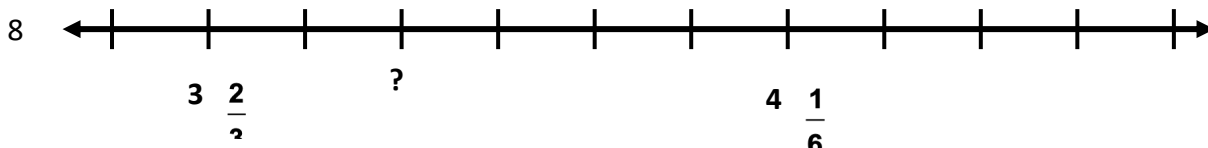
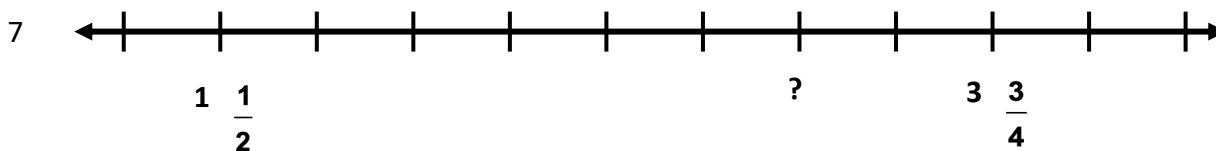
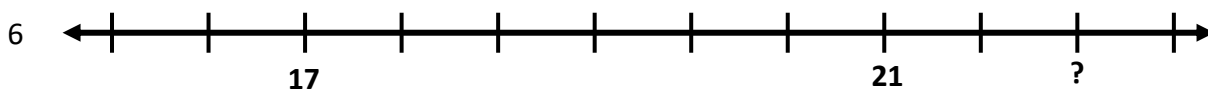
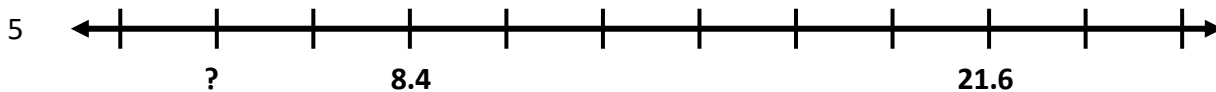
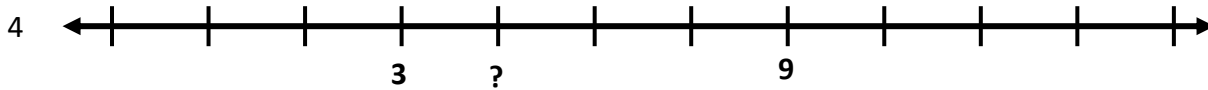
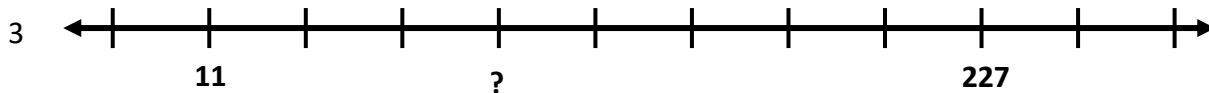
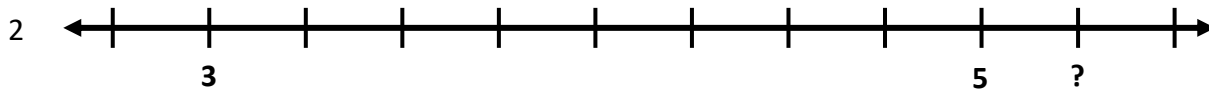
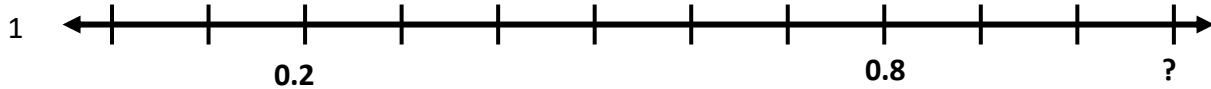
decimals

1. Use the “Income and Expenses Record” (Reproducible 20) to keep track of your income and expenses for a month.
2. Use multiple representations (tables, graphs, written explanations) to organize the information into categories (e.g income, food, clothing, entertainment, etc) and summarize your income and expenses habits.
3. Did any of the totals surprise you? Are there some places where you might want to change your spending habits?

NUMBER LINE CHALLENGES

decimals

All marks are equally spaced on each number line below. Find the unknown value (?) for each number line. Explain your reasoning.



PERCENTS AROUND US

percent

1. Find different containers in your home or neighborhood that meet each of the following requirements. (Your kitchen cupboard or refrigerator could be a good place to start.)
 - a. 100% full
 - b. About 80% full
 - c. About 50% full.
 - d. About 33% full.
 - e. About 5% full.

Take a picture or draw an image that shows the level of the contents inside each container. Then explain why each container meets the requirement.

2. Find three other containers in your home or neighborhood that you think are filled different percents than the ones above. Take a picture or draw an image of each container. Express each answer as a percent, fraction, and decimal. Explain your reasoning.

TEST SCORES

fractions; percent

1. La'Rhonda took Test 1 and got 46 out of 50 problems correct.
 - a. What percent correct did she get?
 - b. What percent incorrect did she get?
 - c. Test 2 had 5 more problems than Test 1, and she got a total of 5 more correct on Test 2 compared to Test 1. Write the correct answers she got as a fraction and a percent.

2. Juan took a test that was in two parts.

- The first part consisted of 10 True/false problems, and he did 7 of them correctly.
- The second part consisted of 15 selected response problems, and he did 12 of them correctly.
- Juan performed the calculation below:

$$\frac{7}{10} + \frac{12}{15} = \frac{19}{25}$$

Juan says that he got exactly 76% correct.

- Juan's friend Thomas tells him that he added these two fractions incorrectly, and shows him the calculation below:

$$\frac{7}{10} + \frac{12}{15} = \frac{21}{30} + \frac{24}{30} = \frac{45}{30} = 1\frac{15}{30} = 1\frac{1}{2}$$

Help Juan understand what his grade should be.