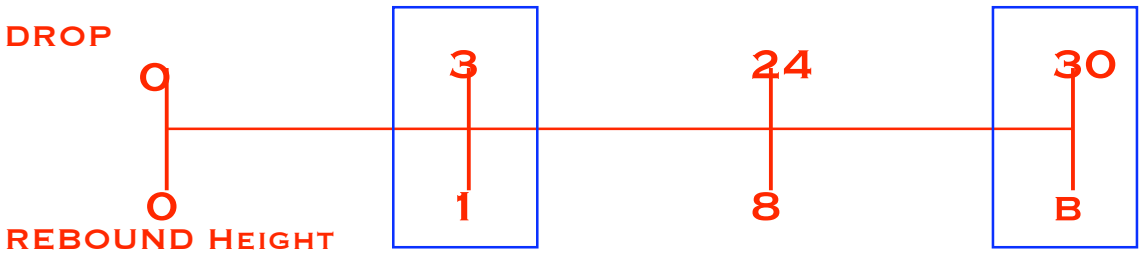
Ball Bounce I

Ball Description: An old blue handball

This ball rebounds to a height of 8 inches when dropped from 24 inches.

The rebound ratio for this ball is: 24/8 or 3/1 (simplify if possible)

Predict the rebound height when the ball is dropped from 30 inches.



$$\frac{3}{1} = \frac{30}{b}$$

$3B = 30$

$B = 10$

The ball should rebound to a height of 10 inches when dropped

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Predict what drop height would be necessary to have a rebound of ____ inches.

Teacher Instructions: The emphasis of this lesson will be to introduce the concept of the double sided numberline for word problems. Begin by showing this experiment in front of the class. Using a bouncy ball, drop it from a height of 24 inches (using a meterstick). Repeat this several times and come to a consensus as to the rebound height. Then illustrate the use of a doublesided numberline to chart the rebounds for several heights and predict a rebound from a specified height. See example above.

Ball Bounce II

Ball Description: _____

This ball rebounds to a height of _____ inches when dropped from 20 inches.

The rebound ratio for this ball is: _____ (simplify if possible)

Return your meter stick and ball to your teacher and ask for numbers to complete the following questions.

Use a proportion with a variable to predict the rebound height when the ball is dropped from ____ inches.

Use a proportion with a variable to predict what drop height is needed to have a rebound of _____.

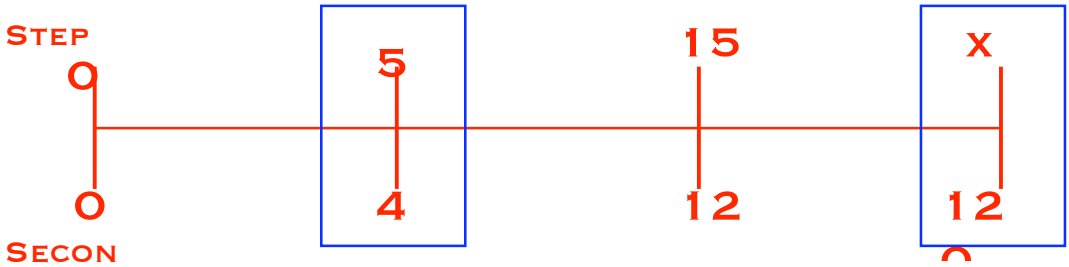
Teacher Instructions: Repeat the previous experiment with another ball of a differing rebound ratio. The emphasis of this lesson will be to reinforce the concept of the double sided numberline for word problems. See previous example.

TEACHER INSTRUCTIONS: THIS EXPERIMENT SHOULD BE DONE AS A WHOLE-CLASS DEMO. HAVE ONE STUDENT WALK HEEL-TO-TOE FOR A SET NUMBER OF SECONDS (SHORT... 12, 20, ETC.) PUT THIS INFORMATION ON THE NUMBERLINE AND WRITE A SIMPLER RATIO IF POSSIBLE. THEN CREATE A QUESTION THAT CAN BE SOLVED USING A NUMBERLINE, SUCH AS ONE OF THE EXAMPLES BELOW. WALK THROUGH EACH STEP UNTIL THE ANSWER IS IN A COMPLETE SENTENCE. MAKE SURE STUDENTS USE THE SIMPLEST RATIO AND THE RATIO WITH THE VARIABLE TO WRITE THEIR PROPORTION.

RATES EXPERIMENT #1:

Juan walks **15 steps** in **12 seconds.**

DIRECTIONS: Fill in this information on the double-sided number line below and follow directions to use it to answer the question your teacher will ask.



Question from the teacher: "How far can Juan walk in 120 seconds?"

Proportion: $\frac{5}{4} = \frac{x}{120}$

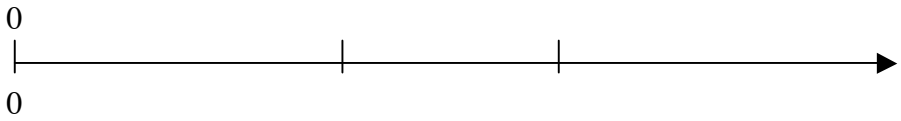
Answer to the question in a sentence:

Juan can walk 150 steps in 120 seconds.

Teacher Instructions: Repeat the instructions from the previous experiment. Do the experiment having a student clap their hands quickly, then create a question that can be solved using a numberline. Walk through each step until the answer is in a complete sentence. Make sure students use the simplest ratio and the ratio with the variable to write their proportion.

_____ claps _____ times in _____

DIRECTIONS: Fill in this information on the double-sided number line below and follow directions to use it to answer the question your teacher will ask.



Question from the teacher:

Proportion:

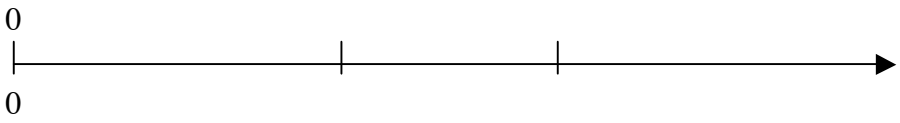
Answer to the question in a sentence:

Rates on a Double-Sided Numberline III

RATES EXPERIMENT #3:

_____ can _____ in _____

DIRECTIONS: Fill in this information on the double-sided number line below and follow directions to use it to answer the question your teacher will ask.



Question from the teacher:

Proportion:

Answer to the question in a sentence:

Use a double-sided number line and a proportion to solve each of the questions below.

1. Maribel earns $34 in 4 hours of work. How long will it take her to earn $85?

   It will take her 10 hours to earn $85.

2. The factory can make 60 bicycles in 8 hours. How many can it make 20 hours?

   The factory can make 150 bicycles in 20 hours.