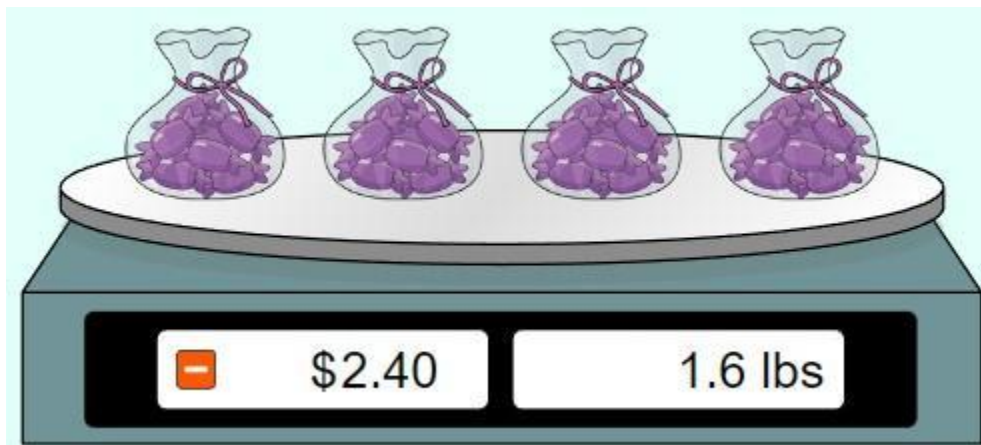
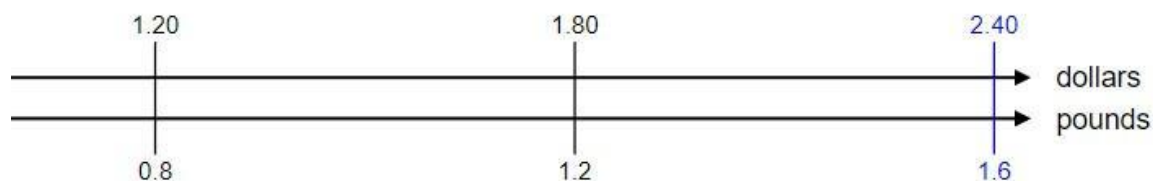


Warm-up



Victor was playing with a PhET simulation and noticed the following picture of four bags of candy on a scale.

- A. How much does each **bag** weigh?
- B. What is the price of **one bag** of candy?
- C. Using this part of a double number line, show how you would find the price of **one pound** of candy.

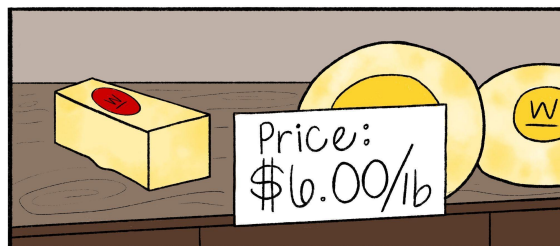


Sam and Alexis were given some money to go to the local market to shop for fixings to make sub sandwiches. They found the bread rolls and condiments, but they still need to purchase the meat, cheese and veggies.

The deli counter sells meats and cheeses. At the deli Sam and Alexis meet Antonio who cuts the meat and cheese, weighs items, packs them and tags them with the price labels.



1. Alexis is thinking about buying $\frac{1}{4}$ pound of Swiss cheese. How could Alexis estimate the price for this amount of this Swiss cheese? What information does she need?
2. Sam would like to purchase some cheddar cheese. Sam figures about $\frac{3}{4}$ pounds will be enough. Use a double number line to calculate how much Sam will have to pay for this amount of cheddar.



Alexis asked Antonio for between 1 and 2 pounds of turkey. After packing the turkey, Antonio weighed the turkey, wrapped it, and printed the following label:

SAFeway		
DIETZ & WATSON HOMESTYLE BLACK PEPPER TURKEY BREAST		
Packed On Aug. 10.22		Sell Thru Aug. 10.22
Net Wt./Ct. 1.20 lb		Total Price \$ 18.00
TURKEY BREAST, WATER, NONFAT DRY MILK, CONTAINS LESS THAN 2% SALT, SUGAR, SODIUM PHOSPHATE, POTASSIUM CHLORIDE. COATED WITH		



3. In pairs or groups, describe at least two strategies that you can use to find the price of one pound of turkey.

Alexis wrote down this information in a double number line.



4. a. How did Alexis use this information to start her double number line?

- b. Use Alexis' double number line to find how many pounds of turkey she could purchase for \$6.



- c. Add another tick mark to find how much 0.2 pounds of turkey would cost.

- d. Use the information you have to find how much one pound of turkey would cost.

In day-to-day activities, we often use a **unit rate** to describe the relationship between values with different units. For example, if a bag of carrots is \$2.50 per pound, there are actually two values with different units: **2.50 dollars** and **1 pound**.

These two values are bundled together so that one of the units has a value of one. In the previous problem, you found the price of turkey in dollars per pound. We often say unit rates using the word “per” which means “for every.” If a customer asks Antonio the price of turkey, he might say, “It’s 7 dollars per pound.” This can be written using the symbols: \$7 / lb

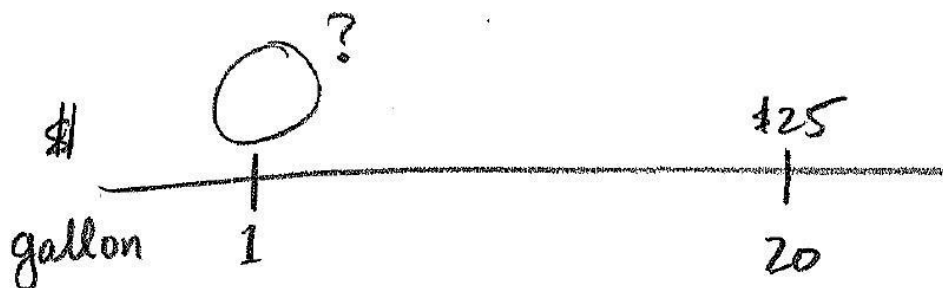


5. What are some other examples of unit rates that you are familiar with? Think of phrases that include the word, “per.”

Gas Problems

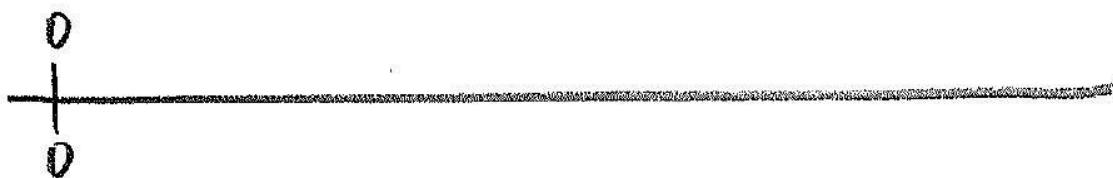
Kayla’s parents have been talking a lot about gas prices lately. It has been getting a bit more expensive to fill the tank on their car. Kayla’s dad said when he was 16 (about 40 years ago), he remembers Kayla’s grandparents could fill the 20 gallon tank on their car for about \$25. Kayla wondered, “What was the price of gas in dollars per gallon (or \$/gal) back then?”

One way she could figure this out is using a double number line:



6. a. Show how you could use Kayla’s double number line to figure out the cost of gasoline 40 years ago.
- b. What is another way you could find the answer?

7. Sam is figuring out the gas mileage for their family car. The last time they went to the gas station, it took 12 gallons of gas to fill the car. The last time they filled the tank, they pressed the trip odometer and were able to drive 624 miles. Use the double number below to find the car's gas mileage (in miles per gallon).



8. Sam's family is taking a car trip. They are driving from Cleveland, Ohio, to see their aunt and cousins in Jackson, Mississippi. Google Maps shows the drive will be about 936 miles.

How many gallons of gas will they need to drive to their aunt's house?
(Hint: Use the gas mileage found in the previous problem.)



Summary

Double number lines can be used to solve problems involving ratios.

Unit rates can be found with double number lines by computing the value of one unit when the other unit in the denominator has a value of one. We can also find unit rates using division. Unit rates are usually written as a single number followed by the combined units, such as 26.3 miles/gallon, or 55 miles/hour. Unit rates can also be used to find the best value when comparing different sizes of the same item.