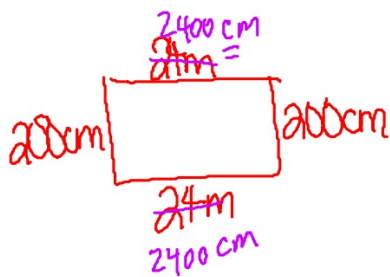


### Warmup 10-8-13

A rectangle has a length of 24 m and a width of 200 cm. What is the perimeter of the rectangle?



$$24 \times 10 = 240 \text{ dm} \times 10 = 2400 \text{ cm}$$

$$2400 + 2400 + 200 + 200 = 5200 \text{ cm}$$

KHDBDCM

↑ meters  $\times 10$   $\times 10$

### Example 2

Brianna has saved \$600 to buy a new TV. If the TV she wants costs \$1,800 and she saves \$20 a week, how many years will it take her to buy the TV?

#4

$$\begin{array}{r} 600 + 20x = 1800 \\ -600 \qquad -600 \end{array}$$

$$\frac{20x}{20} = \frac{1200}{20}$$

$$x = 60 \text{ weeks}$$

#2 \$600

\$1800

\$20 per week

#3 years = x

$$\frac{60 \text{ weeks}}{1} \times \left( \frac{7 \text{ days}}{1 \text{ weeks}} \right) \times \left( \frac{1 \text{ yr}}{365 \text{ days}} \right) = 1.15 \text{ years}$$

### Example 3

Suppose two brothers who live 55 miles apart decide to have lunch together. To prevent either brother from driving the entire distance, they agree to leave their homes at the same time, drive toward each other, and meet somewhere along the route. The older brother drives cautiously at an average speed of 60 miles per hour. The younger brother drives faster, at an average speed of 70 mph. How long will it take the brothers to meet each other?

$$d = rt$$

$d =$  distance

$r =$  rate

$t =$  time

#2 55 miles <sup>distance</sup>  
60 mph  
70 mph

#3  $t?$

$$\#4 \quad 55 = 60t + 70t$$

$$\frac{55}{130} = \frac{130t}{130}$$

$$\textcircled{0.42 \text{ hours} = t}$$

$$0.42 \text{ hours} \times \left( \frac{60 \text{ min}}{1 \text{ hr}} \right) = \textcircled{25 \text{ or } 26 \text{ mins}}$$

#### Example 4

Think about the following scenarios. In what units should they be reported? Explain the reasoning.

- a. Water filling up a swimming pool      gallons/min
- b. The cost of tiling a kitchen floor      cost/ft<sup>2</sup>
- c. The effect of gravity on a falling object      m/sec or ft/sec      9.8 m/sec → 32/sec
- d. A snail traveling across the sidewalk      ~~m/hour~~      m/h = mph      0.00001
- e. Painting a room      cost/yd<sup>2</sup> → cost/ft<sup>2</sup>

**Example 5**

Ernesto built a wooden car for a soap box derby. He is painting the top of the car blue and the sides black. He already has enough black paint, but needs to buy blue paint. He needs to know the approximate area of the top of the car to determine the size of the container of blue paint he should buy. He measured the length to be 9 feet  $11\frac{1}{4}$  inches, and the width to be  $\frac{1}{2}$  inch less than 3 feet. What is the surface area of the top of the car? What is the most accurate area Ernesto can use to buy his paint?