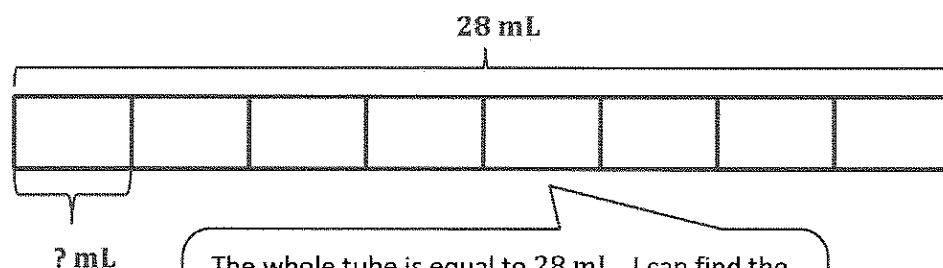


## G5-M4-Lesson 24

1. A tube contains 28 mL of medicine. If each dose is  $\frac{1}{8}$  of the tube, how many milliliters is each dose? Express your answer as a decimal.



The whole tube is equal to 28 mL. I can find the value of one unit, or one dose, by either multiplying  $28 \text{ mL} \times \frac{1}{8}$  or by dividing 28 mL by 8.

$$8 \text{ units} = 28 \text{ mL}$$

$$1 \text{ unit} = 28 \text{ mL} \div 8$$

$$= \frac{28}{8} \text{ mL}$$

$$= 3 \frac{4}{8} \text{ mL}$$

$$= 3 \frac{1}{2} \text{ mL}$$

Now I know that each dose is  $3 \frac{1}{2}$  mL, but the problem asks me to express my answer as a decimal. I'll need to find a fraction that is equal to  $\frac{1}{2}$  and has a denominator of 10, 100, or 1,000.

I can multiply the fraction  $\frac{1}{2}$  by  $\frac{5}{5}$  to create an equivalent fraction with 10 as the denominator. Then I'll be able to express  $3 \frac{1}{2}$  as a decimal.

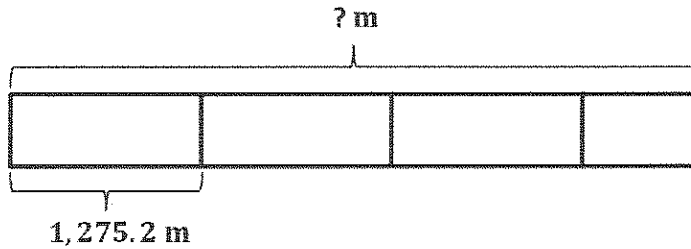
$$\text{Each dose is } 3 \frac{1}{2} \text{ mL.}$$

$$3 \frac{1}{2} \times \frac{5}{5} = 3 \frac{5}{10} = 3.5$$

$$\text{Each dose is } 3.5 \text{ mL.}$$

*Note: Some students may recognize that the fraction  $\frac{1}{2}$  is equal to 0.5 without showing any work. Encourage your child to show the amount of work that is necessary to be successful. If your child can do basic calculations mentally, allow him or her to do so!*

2. A clothing factory uses 1,275.2 meters of cloth a week to make shirts. How much cloth is needed to make  $3\frac{3}{5}$  times as many shirts?



$$1,275.2 \text{ m} = 1,275\frac{2}{10} \text{ m}$$

I can rename 2 tenths meter as a fraction.

My tape diagram reminds me that I can use the distributive property to solve. I can multiply  $1,275\frac{2}{10}$  by 3 first, to find out what 3 times as many shirts is. Then I can multiply by  $\frac{3}{5}$  to find out what  $\frac{3}{5}$  as many shirts is.

$$\begin{aligned}
 1,275\frac{2}{10} \times 3\frac{3}{5} &= \left(1,275\frac{2}{10} \times 3\right) + \left(1,275\frac{2}{10} \times \frac{3}{5}\right) \\
 &= \left(3,825\frac{6}{10}\right) + \left(\frac{12,752}{10} \times \frac{3}{5}\right) \\
 &= \left(3,825\frac{6}{10}\right) + \left(\frac{12,752 \times 3}{10 \times 5}\right) \\
 &= \left(3,825\frac{6}{10}\right) + \left(\frac{38,256}{50}\right) \\
 &= \left(3,825\frac{6}{10}\right) + \left(765\frac{6}{50}\right) \\
 &= \left(3,825\frac{60}{100}\right) + \left(765\frac{12}{100}\right) \\
 &= 4,590\frac{72}{100} \\
 &= 4,590.72
 \end{aligned}$$

In order to add, I make like units, or find common denominators. I'll rename each fraction using hundredths, so I can easily express my final answer as a decimal.

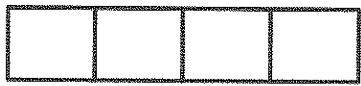
I can rename  $\frac{72}{100}$  as 0.72 to express my final answer as a decimal.


4,590.72 meters of cloth are needed to make the shirts.

3. There are  $\frac{3}{4}$  as many boys as girls in a class of fifth graders. If there are 35 students in the class, how many are girls?

I draw a tape to represent the number of girls in the class.

I partition it into 4 equal units to make fourths.

Girls: 

Boys: 

35

I can think about what my tape diagram is showing. There are a total of 7 units, and those 7 units are equal to a total of 35 students. In order to find out how many girls there are, I need to know the value of 1 unit.

Since there are  $\frac{3}{4}$  as many boys as girls, I draw a tape to represent the number of boys that is  $\frac{3}{4}$  as long as the tape for the number of girls.

$7 \text{ units} = 35$   
 $1 \text{ unit} = 35 \div 7$   
 $1 \text{ unit} = 5$

$4 \text{ units} = 4 \times 5 = 20$   
 There are 20 girls in the class.

If each unit is equal to 5 students and there are 4 units representing the girls, I can multiply to find the number of girls in the class.