

**PLEASE SHOW ALL CALCULATIONS.**

1. A piece of rope is cut into three lengths in the ratio 7: 9: 10.  
If the shortest length is 42 meters:
- a. Find the middle length of the rope. \_\_\_\_\_
- b. Find the longest length of the rope. \_\_\_\_\_
- c. Calculate the total length of the rope. \_\_\_\_\_
2. The ratios of pens to pencils is 14: 92.  $x =$  \_\_\_\_\_  
If there are 46 pencils, find  $x$ , the number of pens.
3. The ratios of men to women at a dance is 12: 36.  $x =$  \_\_\_\_\_  
If there are 9 women, what is the number of men,  $x$ .
4. The ratios of cats to dogs is 30: 220.  $x =$  \_\_\_\_\_  
If there are 44 dogs, find  $x$ , the number of cats.

5. Complete the ratio table below for the ratio  $3:\frac{1}{8}$ . (Keep fractions simplified)

3	6	9	
$\frac{1}{8}$			$\frac{1}{2}$

6. Complete the ratio table below for the ratio  $\frac{1}{2}:\frac{3}{4}$ . (Keep fractions simplified)

$\frac{1}{2}$	1	$\frac{3}{2}$	2	
$\frac{3}{4}$	$\frac{3}{2}$	$\frac{9}{4}$		$\frac{15}{4}$

7. My grandmother's recipe for fruit punch states that 2 cups of apple juice should be mixed with a  $\frac{2}{5}$  of a cup of lemonade. Complete the table that shows different sizes of this recipe.

Apple Juice	Lemonade
2	$\frac{2}{5}$
4	$\frac{4}{5}$
6	$\frac{6}{5}$
8	
10	

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8. Ryan is making perfume to sell. He is using sandalwood and rose oils in the ratio  $1:\frac{1}{4}$ . How much sandalwood oil will he need if he wants to use 1 cups of rose oil? \_\_\_\_\_
9. Jimmy is making a patterned lid for a wooden box. He knows that for every  $\frac{1}{2}$  meters of mahogany he needs 40 centimeters of oak.
- a. He states this as a ratio  $\frac{1}{2}:40$ . Why is this incorrect? \_\_\_\_\_
- A) Units are not the same.
- B) Ratios should always have fractions as the second part.
- b. Which of these ratios correctly states the ratio of mahogany to oak in the same units? Choose all correct options. \_\_\_\_\_
- A)  $0.5 : 0.4$                       B)  $\frac{1}{2} : 0.4$                       C)  $\frac{1}{2} : \frac{2}{5}$
- D)  $\frac{1}{2} : \frac{40}{100}$                       E)  $0.4 : \frac{1}{2}$
- c. How many meters of mahogany would Jimmy need if he wants to use 6 meters of oak? \_\_\_\_\_

10. Danielle is making a dress that uses two materials. She wants to use the materials in the ratio  $\frac{1}{4}$  meters of black for every  $\frac{4}{5}$  meters of yellow.

a. Which of these ratios below represents black : yellow? \_\_\_\_\_  
Choose all correct options.

A)  $\frac{1}{4} : \frac{4}{5}$

B)  $\frac{2}{4} : \frac{8}{5}$

C)  $\frac{4}{5} : \frac{1}{4}$

D)  $\frac{1}{4} : \frac{5}{4}$

b. If she knows she needs 1 meter of black material, \_\_\_\_\_  
how many meters of yellow material will she need?

11. To make the perfect shade of green for her painting, \_\_\_\_\_  
Eileen knows she needs to mix blue to yellow in the ratio  $\frac{5}{7} : \frac{2}{3}$ .  
How much yellow paint will she need if she wants to use 5 pots of blue paint?

12. Patricia is making chocolate chip cookies. She wants a mix \_\_\_\_\_  
of milk chocolate and white chocolate chips in the ratio  $\frac{1}{4} : \frac{1}{7}$ .  
How many cups of white chocolate chips will she need if she wants  
to use 3 cups of milk chocolate chips?

13. Sandy knows her pet tortoise travels  $\frac{1}{3}$  meter every  $\frac{3}{5}$  minutes.

a. Which of the following represents its speed as a ratio? \_\_\_\_\_

A)  $\frac{1}{3} : \frac{5}{3}$       B)  $\frac{1}{3} : \frac{3}{5}$

b. How long will it take the tortoise to travel 2 meters? \_\_\_\_\_

14. Bill is practicing for a swimming race. He has to practice \_\_\_\_\_  
in a pool that is  $\frac{1}{10}$  of a kilometer long. He knows for every  
length of this pool it takes him  $1\frac{1}{3}$  minutes. About how long  
will it take him to complete his 3 kilometer race?

15. Georgia is making muffins. Her recipe states that she needs \_\_\_\_\_  
 $\frac{5}{7}$  cup of butter and  $\frac{1}{3}$  cup of sugar. If she accidentally uses  
1 cup of butter, how much sugar will she need?

16. Square A has a side length of 1 ft, and Square B has a side length of 8 ft.

a. What is the ratio of side lengths for Square A to Square B? \_\_\_\_\_

b. What is the ratio of the areas of Square A to Square B? \_\_\_\_\_