

Additional Practice 8-2

Multiply a Whole Number by a Fraction

Another Look!

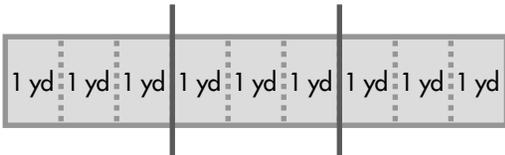
Tyler used $\frac{2}{3}$ of a 9-yard-long piece of fabric to make a jacket. What was the length of fabric, in yards, that he used?

Remember:
 $\frac{2}{3}$ of 9 means $\frac{2}{3} \times 9$.



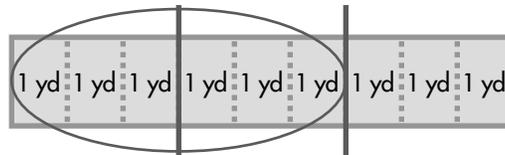
Step 1

Draw 9 pieces each representing 1 yard and separate them into 3 equal groups.



Step 2

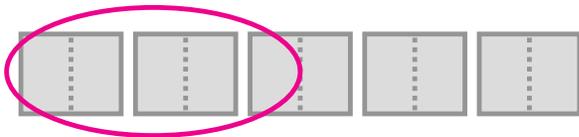
Circle 2 of the groups.



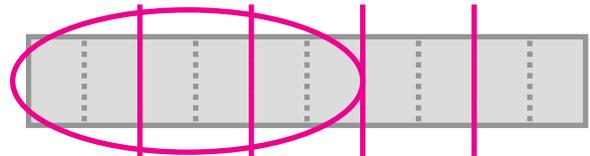
So, Tyler used 6 yards of fabric.

Leveled Practice In 1–8, find each product. Use models to help.

1. $\frac{5}{10} \times 5$ $\frac{5}{2}$ or $2\frac{1}{2}$



2. $\frac{3}{5} \times 10$ 6



3. $\frac{5}{6} \times 3$
 $\frac{15}{6}$ or $2\frac{1}{2}$

4. $\frac{5}{6}$ of 12
 10

5. $\frac{3}{5}$ of 20
 12

6. $\frac{2}{3}$ of 8
 $\frac{16}{3}$ or $5\frac{1}{3}$

7. $\frac{2}{9} \times 3$
 $\frac{6}{9}$ or $\frac{2}{3}$

8. $\frac{4}{7} \times 10$
 $\frac{40}{7}$ or $5\frac{5}{7}$



9. **Critique Reasoning** Find the error in the work below. Then show the correct calculation.

$$\frac{8}{12} \times 6 = 8 \times \frac{1}{12} \times 6 = 8 \times \frac{1}{72} = \frac{8}{72} = \frac{1}{9}$$

The denominator should not be multiplied by 6, only the numerator.

$$\frac{8}{12} \times 6 = 8 \times \frac{1}{12} \times 6 = 8 \times \frac{6}{12} = 8 \times \frac{1}{2} = 4$$

10. A scientist measured the amount of rainfall during the afternoon. It rained 0.43 inch each hour. What was the total amount of rainfall in 3 hours?

1.29 inches

11. A giraffe can run at a speed of 32 miles per hour. Which animal listed in the chart has a speed that is $\frac{15}{16}$ of the speed of a giraffe? Explain how you found your answer. **Cat; Sample explanation:**

$\frac{15}{16} < 1$, so the animal's speed is less than 32 mph. The only speed less than 32 is the cat's speed.

Animal	Speed (in miles per hour)
Cat	30
Cheetah	70
Jackal	35

12. If a frilled lizard is 90 centimeters long, how long is the tail?

60 centimeters



The frilled lizard's tail is $\frac{2}{3}$ of its length.

13. **Higher Order Thinking** Eric has 240 coins in his collection. $\frac{11}{20}$ of the coins are pennies. $\frac{4}{20}$ of the coins are nickels. The rest of the coins are quarters. How many of the coins are quarters? Explain how you found your answer.

Eric has 60 quarters. **Sample explanation:** Add $\frac{11}{20}$ to $\frac{4}{20}$ and subtract the sum, $\frac{15}{20}$, from $\frac{20}{20}$ to find the part that is quarters. $\frac{20}{20} - \frac{15}{20} = \frac{5}{20}$. Then find $\frac{5}{20}$ of 240. $\frac{5}{20} \times 240 = 60$

Assessment Practice

14. Select all of the equations that would be made true with the fraction $\frac{2}{3}$.

- $\times 4 = \frac{8}{3}$
 $\times 15 = 12$
 $\times 21 = 14$
 $\frac{1}{6} \times 4 = \square$

15. Select all of the equations that would be made true with the number 14.

- $\frac{11}{12} \times 12 = \square$
 $\frac{7}{9} \times 18 = \square$
 $\frac{3}{8} \times 16 = \square$
 $\frac{3}{4} \times 12 = \square$