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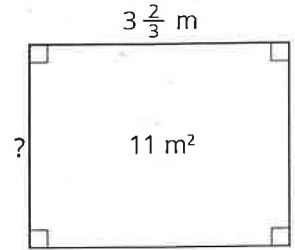
Unit 4, Lesson 13: Rectangles with Fractional Side Lengths

1. a. Find the unknown side length of the rectangle if its area is 11 m^2 . Show your reasoning.

$$11 \div 3\frac{2}{3}$$

$$\frac{11}{1} \div \frac{11}{3}$$

$$\frac{11}{1} \times \frac{3}{11} = \frac{3}{1} \quad \text{3 m}$$



2

- b. Check your answer by multiplying it by the given side length ($3\frac{2}{3}$). Is the resulting product 11? If not, revisit your work for the first question.

2. A worker is tiling the floor of a rectangular room that is 12 feet by 15 feet. The tiles are square with side lengths $1\frac{1}{3}$ feet. How many tiles are needed to cover the entire floor? Show your reasoning.

$$15 \div 1\frac{1}{3}$$

$$\frac{15}{1} \div \frac{4}{3}$$

$$\frac{15}{1} \times \frac{3}{4} = \frac{45}{4} = 11\frac{1}{4} \text{ tiles}$$

$$12 \div 1\frac{1}{3}$$

$$\frac{12}{1} \div \frac{4}{3}$$

$$\frac{12}{1} \times \frac{3}{4} = \frac{36}{4} = 9 \text{ tiles}$$



$$11\frac{1}{4} \times 9$$

$$9(11) + 9(\frac{1}{4})$$

$$99 + \frac{9}{4}$$

3. A television screen has length $16\frac{1}{2}$ inches, width w inches, and area 462 square inches. Select **all** equations that represent the relationship of the side lengths and area of the television.

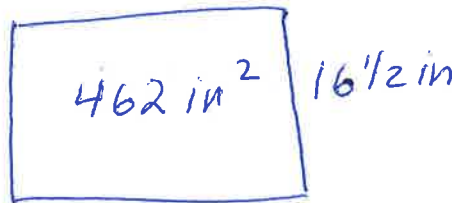
A. $w \cdot 462 = 16\frac{1}{2}$ No

B. $16\frac{1}{2} \cdot w = 462$

C. $462 \div 16\frac{1}{2} = w$

D. $462 \div w = 16\frac{1}{2}$

E. $16\frac{1}{2} \cdot 462 = w$ No



$$99 + 2\frac{1}{4} = 101\frac{1}{4} \text{ tiles}$$

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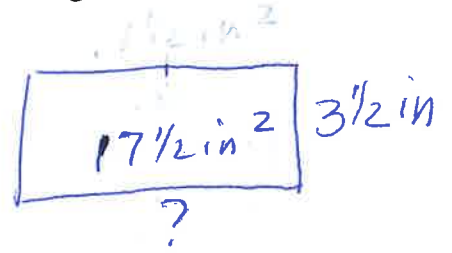
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4. The area of a rectangle is $17\frac{1}{2}$ in² and its shorter side is $3\frac{1}{2}$ in. Draw a diagram that shows this information. What is the length of the longer side?

1

$$17\frac{1}{2} \div 3\frac{1}{2}$$

$$\frac{35}{2} \div \frac{7}{2} = \frac{35}{7} = 5 \text{ in}$$



5. A bookshelf is 42 inches long.

- a. How many books of length $1\frac{1}{2}$ inches will fit on the bookshelf? Explain your reasoning.

1

$$42 \div 1\frac{1}{2} = 42 \times \frac{2}{3} = \frac{84}{3} = 28 \text{ books}$$

- b. A bookcase has 5 of these bookshelves. How many feet of shelf space is there? Explain your reasoning.

$$5 \times 42 = 210 \text{ inches}$$

$$210 \text{ inches} \div 12 \text{ in} = 17\frac{6}{12} = 17\frac{1}{2} \text{ feet}$$

(from Unit 4, Lesson 12)

6. Find the value of $\frac{5}{32} \div \frac{25}{4}$. Show your reasoning.

1

$$\frac{5}{32} \times \frac{4}{25} = \frac{1}{40}$$

(from Unit 4, Lesson 11)

7. How many groups of $1\frac{2}{3}$ are in each of the following quantities?

- a. $1\frac{5}{6}$

1

$$1\frac{5}{6} \div 1\frac{2}{3}$$

$$\frac{11}{6} \div \frac{5}{3}$$

$$\frac{11}{6} \times \frac{3}{5} = \frac{33}{30} = 1\frac{3}{30} = 1\frac{1}{10}$$

(from Unit 4, Lesson 6)

- b. $4\frac{1}{3}$

$$4\frac{1}{3} \div 1\frac{2}{3}$$

$$\frac{13}{3} \div \frac{5}{3} = \frac{13}{5} = 2\frac{3}{5}$$

- c. $\frac{5}{6}$

$$\frac{5}{6} \div 1\frac{2}{3}$$

$$\frac{5}{6} \div \frac{5}{3}$$

$$\frac{5}{6} \times \frac{3}{5} = \frac{1}{2}$$

8. It takes $1\frac{1}{4}$ minutes to fill a 3-gallon bucket of water with a hose. At this rate, how long does it take to fill a 50-gallon tub? If you get stuck, consider using the table.

(from Unit 2, Lesson 14)

1

$$\frac{250}{12} = 20\frac{10}{12} \text{ min}$$

$$\text{or } \frac{50}{3} \times \frac{5}{4} = \frac{250}{12}$$

M	G
$1\frac{1}{4}$	3
$\frac{5}{12}$	1
$\frac{250}{12}$	50

Annotations: $\div 3$ (pointing to the first two rows), $\times 50$ (pointing to the last two rows), $\div 3$ (pointing to the second row), $\times 50$ (pointing to the third row).