NAME   DATE *Tuesday /7 3,5,6*   PERIOD *Wednesday /6 1,2,4*

Unit 4, Lesson 15
Practice Problems

1. A pool in the shape of a rectangular prism is being filled with water. The length and width of the pool is 24 feet and 15 feet. If the height of the water in the pool is $1\frac{1}{3}$ feet, what is the volume of the water in cubic feet?

$$24 \times 15 \times 1\frac{1}{3}$$

$$\frac{360}{1} \times \frac{4}{3} = 480 \text{ ft}^3$$

2. A rectangular prism measures $2\frac{2}{5}$ inches by $3\frac{1}{5}$ inches by 2 inches.

   a. Priya said, "It takes more cubes with edge length $\frac{2}{5}$ inch than cubes with edge length $\frac{1}{5}$ inch to pack the prism." Do you agree with Priya's statement? Explain or show your reasoning. *No $\frac{2}{5}$ are bigger it will take fewer.*

   b. How many cubes with edge length $\frac{1}{5}$ inch fit in the prism? Show your reasoning.

   $$\frac{12}{5} \cdot \frac{16}{5} \cdot \frac{10}{5}$$
   $$12 \cdot 16 \cdot 10$$
   $$192 \cdot 10 = 1,920 \frac{1}{5} \text{ cubes}$$

   c. Explain how you can use your answer in the previous question to find the volume of the prism in cubic inches.

   one cube is $\frac{1}{5} \cdot \frac{1}{5} \cdot \frac{1}{5} = \frac{1}{125}$

   so $\frac{1,920}{1} \cdot \frac{1}{125} = \frac{1920}{125} = 15.36$ cubes

3. a. Here is a right triangle. What is its area?

   $$b \cdot h \cdot \frac{1}{2}$$
   $$\frac{3}{4} \cdot \frac{1}{1} \cdot \frac{1}{2} = \frac{3}{8} \text{ cm}^2$$

   b. What is the height h for the base that is $\frac{5}{4}$ units long? Show your reasoning.
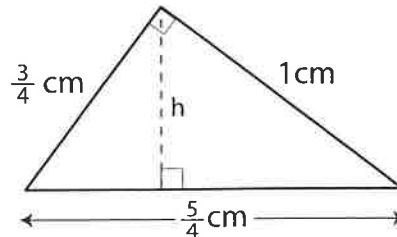
   1. substitute $\frac{5}{4} \cdot h \cdot \frac{1}{2} = \frac{3}{8}$
   2. do $\frac{5}{8} \cdot h = \frac{3}{8}$
   3. ÷ $\frac{3}{8} \div \frac{5}{8} = h$

   KCF 4. $\frac{3}{8} \times \frac{8}{5} = \frac{24}{40} \div \boxed{\frac{8}{8}} = \frac{3}{5} \text{ cm}^2$

   KCF

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4. To give their animals essential minerals and nutrients, farmers and ranchers often have a block of salt—called "salt lick"—available for their animals to lick.

   a. A rancher is ordering a box of cube-shaped salt licks. The edge lengths of each salt lick are $\frac{5}{12}$ foot. Is the volume of one salt lick greater or less than 1 cubic foot? Explain your reasoning.

cube means $\frac{5}{12} \cdot \frac{5}{12} \cdot \frac{5}{12} = \frac{125}{1728}$

L   W   H

since each side is less than 1 foot volume is less than 1 ft³

"Salt-lick 4 beentree" by Beentree via Wikimedia Commons. CC BY-SA 2.5.

   b. The box that contains the salt lick is $1\frac{1}{4}$ feet by $1\frac{2}{3}$ feet by $\frac{5}{6}$ feet. How many cubes of salt lick fit in the box? Explain or show your reasoning.

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$\frac{5}{4} \cdot \frac{5}{3} \cdot \frac{5}{6} = \frac{125}{72}$ ft² so

$3 \cdot 4 \cdot 2 = 24$ cubes

OR

KCF

$\frac{125}{72} \div \frac{125}{1728}$, $\frac{125}{72} \times \frac{1728}{125} = 24$ cubes

5. a. How many groups of $\frac{1}{3}$ inch are in $\frac{3}{4}$ inch?

$\frac{3}{4} \div \frac{1}{3}$ $\frac{3}{4} \times \frac{3}{1} = \frac{9}{4} = 2\frac{1}{4}$ groups

   b. How many inches are in $1\frac{2}{5}$ groups of $1\frac{2}{3}$ inches?

×

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

$\frac{7}{5} \times \frac{5}{3} = \frac{7}{3} = 2\frac{1}{3}$ groups

½

6. Here is a table that shows the ratio of flour to water in an art paste. Complete the table with values in equivalent ratios.

Think of a → horizontal rule OR ↓↑

⅓

cups of flour	cups of water
1 ÷ 2 =	$\frac{1}{2}$
4 ÷ 2 =	2
6 ÷ 2	3
$\frac{1}{2}$ ÷ 2	$\frac{1}{4}$