Fractions (Part 2)

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Objectives

- Multiplying Fractions
- Dividing Fractions

Multiplication of Fractions

- Recall that "of" means to multiply.
- What is one half of two thirds? How would you represent this visually and numerically?

Multiplication

- To multiply fractions, multiply the numerators, multiply the denominators. Reduce to lowest terms if possible.
- Example: $\frac{3}{4} \times \frac{7}{12}$
- Example: $\left(\frac{5}{3}\right)\left(\frac{9}{16}\right)$
- Example: $\frac{1}{4}$ of 8

Multiplication

- Always change mixed numbers to improper fractions before multiplying
- Example: $4\frac{1}{2} \times 2\frac{3}{16}$
- Example: If $\frac{5}{8}$" on a blueprint represents 1', how many inches on the drawing will represent 28'?

Try Yourself

- 1) Represent with a picture and solve: $\frac{1}{2}$ of $\frac{3}{4}$
- 2) You need four pieces of flat bar that are $\frac{9}{16}$" each. What is the total length of all four pieces?

Try Yourself

- 3) You need to punch consecutive holes, evenly spaced along a line, on strip of metal. The center-to-center distance between the consecutive holes is $1\frac{3}{16}$". What is the total distance x between the first and last centers as shown in the figure if there are to be seven holes?

Division of Fractions

- As with multiplying, change all mixed numbers to improper fractions.
- To divide proper/improper fractions, take the reciprocal of the fraction **after** the division sign. ("flip" the fraction after the division sign).

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c}$$

- Reciprocal Examples: What is the reciprocal of..
  - $\frac{9}{16}$
  - $3\frac{1}{2}$
  - 8

Division

- Example: $\frac{1}{4} \div \frac{2}{3}$
- Example: $\frac{5}{8} \div 2$
- Example: $3\frac{3}{4} \div 1\frac{1}{2}$

Application Problem

- You have to drill 13 holes in a bar. If the distance from the center of the first to the center of the last hole is to be 50 ¼ in., what is the distance between each hole? Write the final answer as a mixed number.

Try Yourself

- 1) $\frac{1}{16} \div \frac{3}{8}$
- 2) $3\frac{7}{8} \div 4$
- 3) $20 \div \frac{3}{4}$

Try Yourself

- 4) How many pieces $8\frac{3}{8}$ in long can be cut from 6 metal rods each 240 in. long? (Disregard waste from each cut.)