

# Determining Equivalent Fractions

## Method 1: Cross Products Test

If the products of cross-multiplication are the same, the fractions are equivalent.

Example: Fractions

### Cross Products Test

$$7 \cdot 4 = 28 \quad \frac{7}{14} \stackrel{=}{=} \frac{2}{4} \quad 2 \cdot 14 = 28$$

Example: Fractions Containing Decimals

### Cross Products Test

$$3.2 \cdot 0.24 = 0.768 \quad \frac{3.2}{4.8} \stackrel{=}{=} \frac{0.16}{0.24} \quad 4.8 \cdot 0.16 = 0.768$$

Example: Mixed Numerals / Improper Fractions

### Cross Products Test

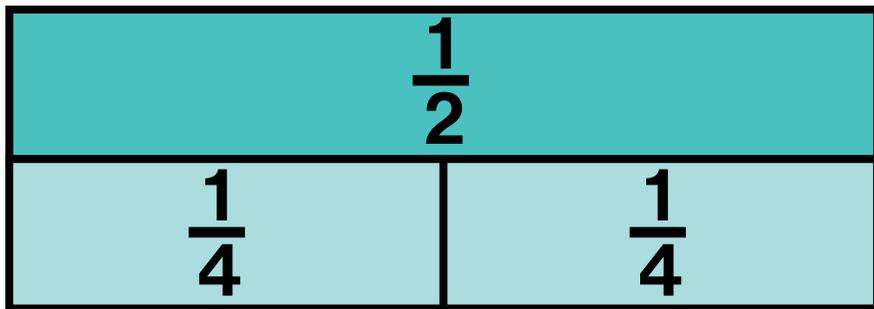
$$4\frac{2}{3} \cdot 16\frac{1}{3} = \frac{14}{3} \cdot \frac{49}{3} = \frac{686}{9}$$
$$\frac{4\frac{2}{3}}{32\frac{2}{3}} \stackrel{=}{=} \frac{2\frac{1}{3}}{16\frac{1}{3}}$$
$$32\frac{2}{3} \cdot 2\frac{1}{3} = \frac{98}{3} \cdot \frac{7}{3} = \frac{686}{9}$$

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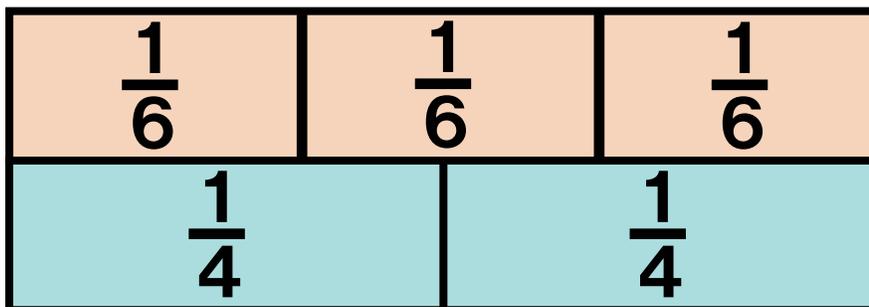
## Method 2 : Fraction Bars

Fraction bars can be used to determine if fractions are equivalent; however, this method is limited by the length of the fraction bars.

$$\frac{1}{2} = \frac{2}{4}$$



$$\frac{3}{6} = \frac{2}{4}$$



# Determining Equivalent Fractions

## Method 3: Long Division

Long division converts fractions directly into easy-to-compare decimal values.

$$\frac{3}{8} = \frac{6}{16}$$

$$\begin{array}{r} 0.375 \\ 8 \overline{) 3.000} \\ \underline{- 24} \phantom{0} \phantom{0} \\ 60 \phantom{0} \\ \underline{- 56} \phantom{0} \\ 40 \\ \underline{- 40} \\ 0 \end{array}$$

$$\begin{array}{r} 0.375 \\ 16 \overline{) 6.000} \\ \underline{- 48} \phantom{0} \phantom{0} \\ 120 \phantom{0} \\ \underline{- 112} \phantom{0} \\ 80 \\ \underline{- 80} \\ 0 \end{array}$$

$$0.375 = 0.375$$