TOPIC: LEAST COMMON DENOMINATORS

Finding the Least Common Denominator

◆ **Least Common Multiple** (LCM) of given numbers is the *smallest* whole # that is a multiple of all given numbers.

► **Least Common Denominators** (LCD) of fractions is the _____ of the denominators.

New **Least Common Denominator**

$$\frac{1}{10} \text{ and } \frac{4}{15}$$

1) Write prime factorization of each denominator

$10 =$

$15 =$

2) Identify unique prime factors & the maximum # of times they occur

3) Multiply factors identified in 2)

LCD $=$

◆ If there is a *variable* in the denominator, treat it as a prime factor when finding the LCD.

EXAMPLE Determine the least common denominator of the given fractions.

$$\frac{3}{4x}, \frac{9}{18}$$

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PRACTICE Find the least common denominator of each set of fractions.

(A) $\frac{3}{8}, \frac{5}{12}$

(B) $-\frac{2}{9}, \frac{7}{15}$

(C) $\frac{1}{5}, \frac{5}{7}, \frac{7}{14}$

PRACTICE Find the least common denominator of each set of fractions.

(A) $\frac{1}{3x}, \frac{7}{12}$

(B) $\frac{2}{8}, \frac{9}{15y}, \frac{3}{20}$

(C) $-\frac{1}{15y}, \frac{1}{90y}$

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Writing Equivalent Fractions with a Given Denominator

Recall

$$\frac{a}{b} = \frac{a \cdot c}{b \cdot c}$$

◆ Recall: Get equivalent fractions by multiplying numerator & denominator by the same constant.

► To write an equivalent fraction given a denominator, find c, then multiply numerator & denominator by c.

New **Equivalent Fractions w/ Given Denominator**

$$\frac{5}{6} = \frac{\quad}{18}$$

$$\frac{5 \cdot}{6 \cdot} = \frac{\quad}{18}$$

EXAMPLE Write the fraction as an equivalent fraction with the given denominator.

$$\frac{2}{3x} = \frac{\quad}{36x}$$

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EXAMPLE Write the following sets of fractions as their equivalent fractions w/ given LCD.

(A) $\frac{5}{9}, \frac{7}{12}$

LCD: 36

(B) $\frac{2}{5}, \frac{3}{12}, \frac{7}{15}$

LCD: 60

(C) $-\frac{3}{7}, \frac{5}{12}, \frac{2}{14}$

LCD: 84

PRACTICE Write an equivalent fraction with a given denominator.

(A) $\frac{4}{9} = \frac{}{27}$

(B) $\frac{10}{7} = \frac{}{28}$

(C) $\frac{8}{3z} = \frac{}{18z}$

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PRACTICE Rewrite the fraction below as an equivalent fraction with a denominator of 36.

$(\boldsymbol{A})$ $\frac{4}{9} = \frac{\quad}{36}$

$(\boldsymbol{B})$ $\frac{1}{3} = \frac{\quad}{36}$

$(\boldsymbol{C})$ $\frac{2z}{12} = \frac{\quad}{36}$