



## 1.3 Fractions

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### Need To Know



- Prime Factoring
- Operations on Fractions
  - Simplify (Reduce)
  - Multiply
  - Divide
  - Add
  - Subtract



## Vocabulary

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Definitions:

Prime numbers – are numbers that can only be factored by one and itself.

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Prime factoring - means to write a number as a product of only prime numbers.



## Prime Factoring

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Prime factor 48

Prime factor 420



## Reducing Fractions

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Reduce  $\frac{5}{15}$                        $\frac{9}{21}$

Reduce  $\frac{279}{310}$



## Multiplication of Fractions

Simplify each expression

$$\frac{6}{5} \left( \frac{2}{7} \right)$$

$$\frac{2}{3} \cdot \frac{5}{x}$$

$$7 \cdot \left( \frac{2}{9} \right)$$

Recall fraction multiplication

$$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$$



## Division of Fractions

Recall – Division of fractions is the same as \_\_\_\_\_.

Simplify:

$$\frac{7}{9} \div \left( \frac{1}{6} \right)$$

$$15 \div \left( \frac{3}{2} \right)$$

end



## 1.3.B Add and Subtract Fractions

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### Need To Know

- How to add/subt. fractions with same denominator
- Rename fractions
- Find Least Common Denominator
- How to add/subt. fractions with different denominator



## Add and Subtract Fractions

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Recall the method to add fractions

Recall the method to subtract fractions



## Renaming Fractions

Recall how to use the “fancy one” to rename fractions.

$$\frac{9}{16} = \frac{\quad}{48} \qquad \frac{19}{42} = \frac{\quad}{210}$$



## Least Common Denominator

Definition –

The least common denominator (LCD) for a set of denominators is the smallest multiple that each denominator can divide into evenly.

Examples: Find the LCD

$$\frac{1}{6}, \frac{1}{10} \qquad \frac{1}{2}, \frac{1}{4}, \frac{1}{6}$$



## How to find the LCD

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There are three ways to find LCD's

Use intuition

Use a list of multiples

Use the prime factoring method



## How to find the LCD

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Listing multiples method

Example: Find the LCD of 12 and 18



## How to find the LCD

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### Prime factor method

Example: Find the LCD of 60 and 42.

### Steps to find LCD

1. Prime factor each denominator
2. Create a product
  - using each factor
  - raised to the highest exponent that occurs in any one factoring



## Add and Subtract Fractions

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Recall how to add fraction

$$\frac{3}{10} + \frac{4}{14}$$

### How to + or - fraction

Find the LCD

Rename each fraction  
(use the "fancy one")

Add numerators

Reduce



## Practice

Simplify:

$$\frac{3}{8} + \frac{2}{5} + \frac{1}{4}$$

- **How to + or – fraction**

1. Find the LCD
2. Rename (use the “fancy one”)
3. Add numerators
4. Reduce

Simplify:

$$\frac{1}{30} + \frac{9}{40}$$



## Practice

Simplify:

$$3 - \frac{3}{5}$$

- **How to + or – fraction**

1. Find the LCD
2. Rename (use the “fancy one”)
3. Add numerators
4. Reduce

Simplify:

$$\frac{23}{70} - \frac{29}{84}$$

end