

TOPIC: RATIONAL NUMBERS

Intro to Fractions

◆ A fraction represents part of a whole & has a **numerator**, **denominator**, and **fraction bar**: $\frac{a}{b} = \div$, $b \neq _$.

► Get *equivalent fractions* by _____ the numerator & denominator by the same _____.

New

Fractions

_____ parts

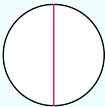
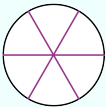
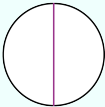
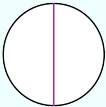
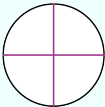
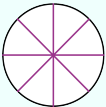
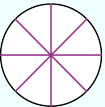
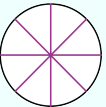
of _____ parts

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

$\frac{1}{2}$ $\frac{2}{4}$ $\frac{3}{6}$

Types of Fractions

◆ Fractions can be proper, improper, or mixed.

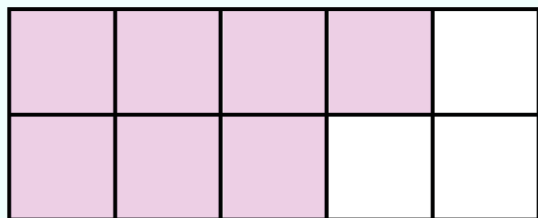
Fraction	Definition	Example
Proper	numerator denominator: Value is 1	$\frac{1}{2}$  $\frac{4}{6}$ 
Improper	numerator denominator: Value is 1	$\frac{3}{2}$  $\frac{2}{2}$ 
Mixed	whole number proper fraction	$1\frac{1}{4}$  $2\frac{7}{8}$   

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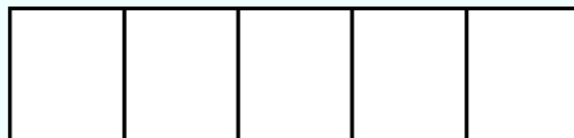
EXAMPLE

What fractions are indicated by each shaded part of the given illustration?

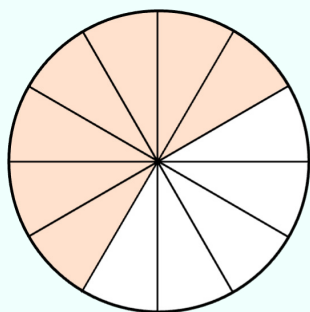
(A)



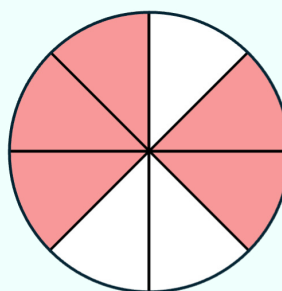
(B)



(C)



(D)



PRACTICE

From the choices, select the fraction equivalent to the given fraction.

(A)

- $\frac{3}{5}$ a. $\frac{9}{15}$
b. $\frac{6}{20}$
c. $\frac{15}{5}$

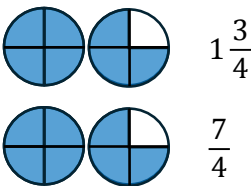
(B)

- $\frac{11}{4}$ a. $\frac{55}{15}$
b. $\frac{33}{12}$
c. $\frac{66}{18}$

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Rewriting Improper and Mixed Numbers

◆ Recall: Improper fractions and mixed numbers can represent the same value.



Mixed Number → Improper Fraction	Improper Fraction → Mixed Number
$1 \frac{3}{4}$ 1) Multiply whole number by denominator 2) Add to numerator 3) Put result over original denominator	$\frac{7}{4}$ 1) Divide numerator by denominator divisor $\overline{)$ quotient remainder 2) Rewrite as quotient $\frac{\text{remainder}}{\text{divisor}}$

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PRACTICE

Convert the following mixed number to a fraction.

(A) $4\frac{2}{3}$

(B) $6\frac{1}{4}$

PRACTICE

Convert the following fraction to a mixed number.

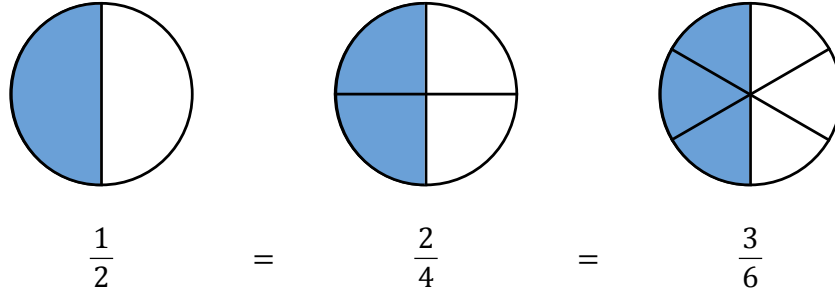
(A) $\frac{43}{9}$

(B) $\frac{-29}{6}$

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Simplify Fractions (Write Fractions in Lowest Terms)

◆ Recall: You can get equivalent fractions by *multiplying* the numerator and denominator by the same constant.



► To **simplify** a fraction into **lowest terms**, factor num. and denom. & *divide out* (_____) greatest common factor.

New **Simplifying Fractions**

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

$$\frac{4}{6} = \underline{\quad}$$

◆ If GCF isn't obvious, factor num. & denom. into *prime* factors OR choose ____ common factor & work in stages.

EXAMPLE

Simplify the following fractions to lowest terms.

(A) $\frac{80}{60}$

(B) $\frac{5}{4}$

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PRACTICE

Simplify the following fraction to lowest terms.

(A) $\frac{16}{24}$

(B) $-\frac{28}{49}$

(C) $\frac{3}{7}$