Fraction Review

A fraction consists of two numbers: a *numerator* (the top number) and a *denominator* (the bottom number).

Numerator = number of parts

$\frac{1}{6}$

Denominator = number of parts that make a whole

Simplifying Fractions
Also called, reducing or writing the fraction in lowest terms

A fraction is simplified if the numerator and denominator have no factors in common other than 1.

To simplify a fraction divide both the numerator and denominator by the *largest number* that will divide evenly into both.

Examples: $\frac{18}{30}=\frac{3\cdot 6}{5\cdot 6}=\frac{3}{5}$ $\frac{10xy}{15y}=\frac{2\cdot 5\cdot x\cdot y}{3\cdot 5\cdot y}=\frac{2x}{3}$

Multiplying Fractions
Multiply straight across, numerator times numerator and denominator times denominator. Simplify, if possible.

Examples: $\frac{3}{4}\cdot\frac{1}{5}=\frac{3}{20}$ $\frac{11}{24}\cdot\frac{3y}{5}=\frac{33y}{120}=\frac{11y\cdot 3}{40\cdot 3}=\frac{11y}{40}$

Dividing Fractions
Multiply the first fraction by the reciprocal (flip) of the second fraction.

Examples: $\frac{3}{4}\div\frac{1}{5}=\frac{3}{4}\cdot\frac{5}{1}=\frac{15}{4}$

$\frac{3y}{4}\div 5y^3=\frac{3y}{4}\cdot\frac{1}{5y^3}=\frac{3y}{20y^3}=\frac{3\cdot y}{20y^2\cdot y}=\frac{3}{20y^2}$

Adding or Subtracting Fractions
DENOMINATORS must be the SAME to add or subtract fractions. Get a common denominator, if needed, then add or subtract the numerators and keep the common denominator. Simplify, if possible.

Examples: $\frac{3}{4}+\frac{1}{5}=\frac{3\cdot 5}{4\cdot 5}+\frac{1\cdot 4}{5\cdot 4}=\frac{15}{20}+\frac{4}{20}=\frac{15+4}{20}=\frac{19}{20}$

$\frac{7}{8}-\frac{1}{4}=\frac{7}{8}-\frac{1\cdot 2}{4\cdot 2}=\frac{7}{8}-\frac{2}{8}=\frac{7-2}{8}=\frac{5}{8}$

Practice

Simplify

1. $\frac{30}{16}$

2. $-\frac{60}{75}$

Perform the indicated operation and simplify, if needed.

3. $\frac{1}{7}\cdot\frac{7}{18}$

4. $\frac{5}{13}\div\frac{15}{26}$

5. $\frac{11}{14}-\frac{5}{14}$

6. $200\cdot\frac{2}{5}$

7. $\frac{9a}{10}+\frac{2}{5}$

8. $\frac{2}{3y}-\frac{5}{6y}$

9. $\frac{1}{7}-\frac{3}{x}$

10. $-\frac{2}{3}\cdot\frac{8}{15}$

11. $-\frac{9}{10}\div 5$

12. $\frac{7}{8}+\frac{1}{20}$

Answers on back

Practice Answers

1. $\frac{15}{8}$

2. $-\frac{4}{5}$

3. $\frac{1}{18}$

4. $\frac{2}{3}$

5. $\frac{3}{7}$

6. 80

7. $\frac{9a+4}{10}$

8. $-\frac{1}{6y}$

9. $\frac{x-21}{7x}$

10. $-\frac{16}{45}$

11. $-\frac{9}{50}$

12. $\frac{37}{40}$