

Section 1.2: Fraction Review

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1. Multiply the fractions - Try to cross-cancel first. Always simplify!

$$a. \frac{\overset{1}{\cancel{3}}}{5} \cdot \frac{\overset{1}{\cancel{7}}}{\underset{2}{\cancel{6}}} = \frac{7}{10}$$

$$b. \frac{\overset{+}{\cancel{5}}}{\underset{2}{\cancel{10}}} \cdot \frac{\overset{1}{\cancel{4}}}{3} = \frac{-22}{3}$$

$$c. \left(\frac{\overset{1}{\cancel{3}}}{\underset{4}{\cancel{8}}} \right) \cdot \left(\frac{\overset{1}{\cancel{2}}}{\underset{3}{\cancel{6}}} \right) = \frac{1}{12}$$

$$d. -3 \cdot \frac{1}{6} = -\frac{3}{1} \cdot \frac{1}{\underset{2}{\cancel{6}}} = -\frac{1}{2}$$

$$e. \left(\frac{3}{5} \right)^2 = \frac{3}{5} \cdot \frac{3}{5} = \frac{9}{25}$$

$$f. \frac{\overset{1}{\cancel{2}}}{\underset{1}{\cancel{3}}} \cdot \frac{\overset{1}{\cancel{5}}}{\underset{2}{\cancel{4}}} \cdot \frac{\overset{3}{\cancel{9}}}{\underset{2}{\cancel{10}}} = \frac{3}{4}$$

2. Divide the fractions. Always simplify!

$$a. -1 \div \frac{1}{4} = -\frac{1}{1} \cdot \frac{4}{1} = -\frac{4}{1} = -4$$

$$b. -\frac{1}{7} \div \left(-\frac{5}{6} \right) = -\frac{1}{7} \cdot -\frac{6}{5} = \frac{6}{35}$$

$$c. \frac{9}{2} \div \left(-\frac{1}{3} \right) = \frac{9}{2} \cdot -\frac{3}{1} = -\frac{27}{2}$$

$$d. -\frac{3}{8} \div \frac{9}{4} = -\frac{\overset{1}{\cancel{3}}}{\underset{2}{\cancel{8}}} \cdot \frac{\overset{1}{\cancel{4}}}{\underset{3}{\cancel{9}}} = -\frac{1}{6}$$

3. Add or subtract the fractions. Always simplify!

a. $\frac{1.2}{7.2} + \frac{1}{14}$ LCD = 14

$$= \frac{2}{14} + \frac{1}{14} = \frac{3}{14}$$

b. $\frac{3.5}{4.5} - \frac{4.4}{5.4}$

$$\frac{15}{20} - \frac{16}{20} = -\frac{1}{20}$$

Prime factorization for LCD:

2	5
4	5
8	10
12	15
16	20
20	
24	

LCD = 20
= 20

c. $-\frac{1.5}{3.5} + \frac{4}{5}$ LCD = 15

$$-\frac{5}{15} + \frac{12}{15} = -\frac{7}{15}$$

d. $\frac{1.9}{2.9} - \frac{5.2}{9.2}$ LCD = 18

$$\frac{9}{18} - \frac{10}{18} = -\frac{1}{18}$$

e. $-2 + \frac{5}{7}$

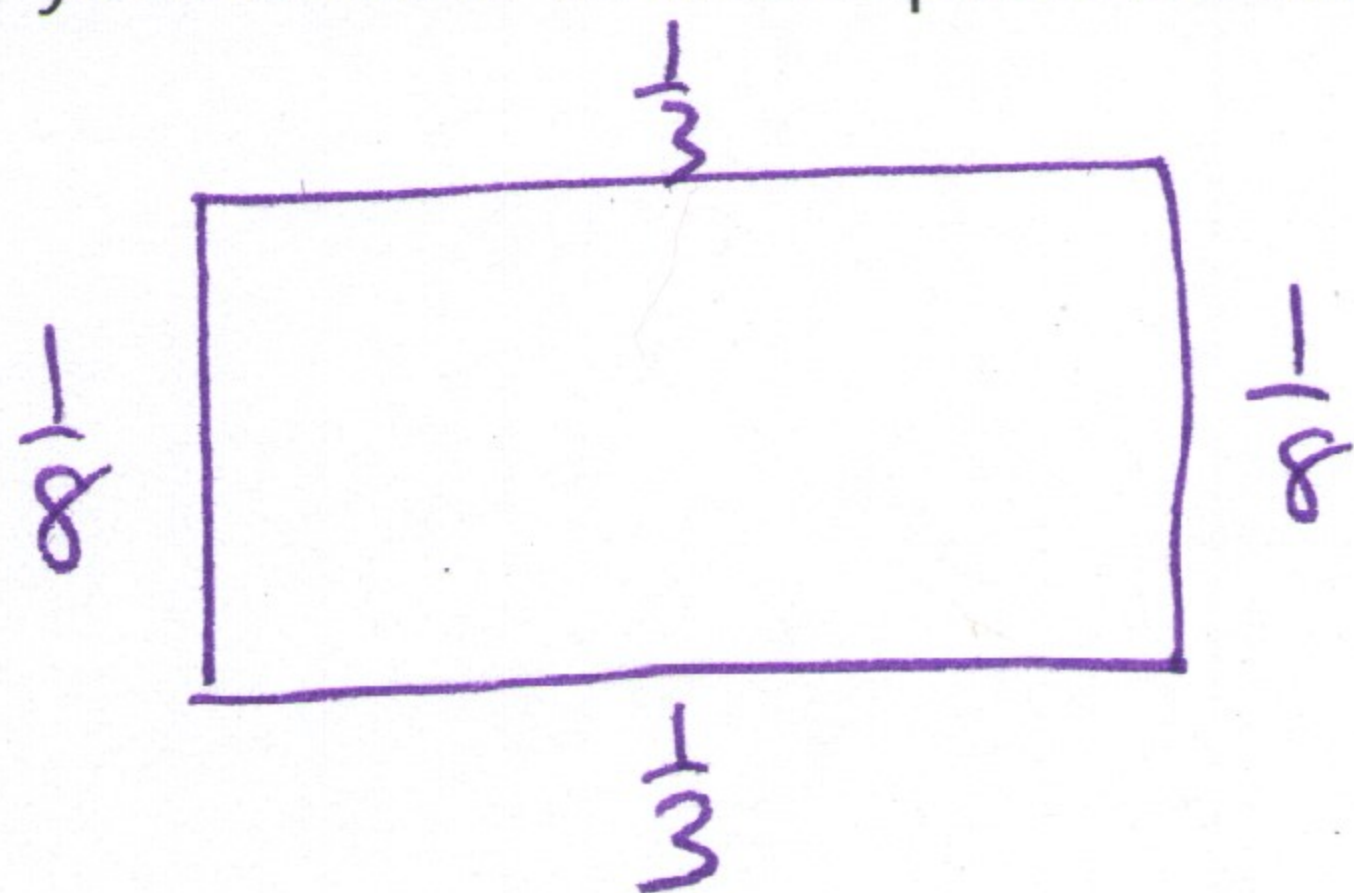
$$-\frac{14}{7} + \frac{5}{7} = -\frac{9}{7}$$

f. $\frac{3.3}{4.3} + \frac{1}{6.2} - \frac{7.4}{23.4}$ LCD = 12

$$\frac{9}{12} + \frac{2}{12} - \frac{28}{12} = \frac{11}{12} - \frac{28}{12} = -\frac{17}{12}$$

4. Perimeter and area – Draw a Picture.

A rectangular yard is $\frac{1}{8}$ of a mile wide by $\frac{1}{3}$ mile long. How long is the perimeter? How long is the area? Write your answer in a complete sentence, including units.



Perimeter:

$$\begin{aligned} &\frac{1}{8} + \frac{1}{8} + \frac{1}{3} + \frac{1}{3} \\ &= \frac{2.3}{8.3} + \frac{2.8}{3.8} \\ &= \frac{6}{24} + \frac{16}{24} \\ &= \frac{22}{24} \\ &= \frac{11}{12} \text{ miles} \end{aligned}$$

Area:

$$\frac{1}{8} \cdot \frac{1}{3} = \frac{1}{24} \text{ mi}^2$$

or
square miles

Section 1.4: Order of Operations

PEMDAS
left to right left to right

5. Evaluate each expression using the order of operations. Show each step using proper form.

a. $10 + 7[5 - 6 \div 3]$

$$= 10 + 7[5 - 2]$$

$$= 10 + 7(3)$$

$$= 10 + 21$$

$$= 31$$

b. $7 - 3[4 - (-3)^2]$

$$= 7 - 3[4 - 9]$$

$$= 7 - 3(-5)$$

$$= 7 + 15$$

$$= 22$$

c. $3(1 - 2|3 - 6|)$

$$= 3(1 - 2|-3|)$$

$$= 3(1 - 2 \cdot 3)$$

$$= 3(1 - 6)$$

$$= 3(-5)$$

$$= -15$$

d. $\frac{22 + 20 \div (-5)}{(-4 + 7)^2}$

$$= \frac{22 + (-4)}{3^2}$$

$$= \frac{18}{9}$$

$$= 2$$

e. $4(-9) + 8 \div (-2) - 6 \cdot 5$

$$= -36 - 4 - 30$$

$$= -40 - 30$$

$$= -70$$

f. $3 - \sqrt{7(4) + 8}$

$$= 3 - \sqrt{28 + 8}$$

$$= 3 - \sqrt{36}$$

$$= 3 - 6$$

$$= -3$$

6. More Practice

LCD = 12

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

$$= \frac{8}{12} + \frac{9}{12} = \frac{17}{12}$$

c. $\frac{2}{3} \cdot \frac{3}{4} = \frac{1}{2}$

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

$$= \frac{8}{12} - \frac{9}{12} = -\frac{1}{12}$$

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

$$\frac{2}{3} \cdot \frac{4}{3} = \frac{8}{9}$$

e. $-\frac{1}{6} - \frac{3}{12}$

LCD = 12

$$-\frac{2}{12} - \frac{3}{12} = -\frac{5}{12}$$

f. $\left(\frac{2}{3}\right)^2$

$$\frac{2}{3} \cdot \frac{2}{3} = \frac{4}{9}$$

g. $-\frac{7}{8} \div \frac{1}{4}$

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

h. $\frac{9}{16} \cdot \frac{4}{8} \cdot \frac{2}{5} = \frac{3}{10}$

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

LCD = 8

$$\frac{4}{8} - \frac{6}{8} + \frac{5}{8} = -\frac{2}{8} + \frac{5}{8} = \frac{3}{8}$$

j. $-\frac{2}{8} + \frac{11}{6}$

LCD = 24

$$= -\frac{19}{24} + \frac{44}{24} = \frac{25}{24}$$

$$\begin{array}{r} 19 \\ \times 3 \\ \hline 57 \\ 57 \\ -44 \\ \hline 13 \end{array}$$

k. $-\frac{2}{1} \cdot \left(\frac{1}{8}\right)$

$$= -\frac{2}{8} \text{ or } -\frac{1}{4}$$

l. $1\frac{1}{2} \div (-\frac{3}{1})$

$$\frac{3}{2} \cdot -\frac{1}{3} = -\frac{1}{2}$$

$$\begin{aligned} \text{m. } & \frac{2^2 - 5^2}{(2-5)^2} \\ &= \frac{4 - 25}{(-3)^2} \\ &= \frac{-21}{9} \end{aligned}$$

$$\begin{aligned} \text{n. } & -6^2 - 27 \div 3^2 \cdot 2 - (-1) \\ &= -36 - \underline{27 \div 9} \cdot 2 + 1 \\ &= -36 - \underline{3 \cdot 2} + 1 \\ &= -36 - 6 + 1 \\ &= -42 + 1 \\ &= -41 \end{aligned}$$

o. Jess walked $\frac{7}{10}$ of a mile in the morning and $\frac{3}{4}$ of a mile in the afternoon. How far did they walk altogether? Show all your steps and write your answer in a complete sentence.

$$\begin{aligned} \frac{7 \cdot 2}{10 \cdot 2} + \frac{3 \cdot 5}{4 \cdot 5} &= \frac{14}{20} + \frac{15}{20} \\ &= \frac{29}{20} \\ &= 1 \frac{9}{20} \end{aligned}$$

Jess walked $1 \frac{9}{20}$ miles altogether.

p. Carlos is making Polvorones, which are Mexican Wedding Cookies. The recipe calls for $1 \frac{1}{4}$ cups of butter and he is making five times the recipe. How much butter does he need?

$$\begin{aligned} & 1 \frac{1}{4} \cdot 5 \\ &= \frac{5}{4} \cdot \frac{5}{1} \\ &= \frac{25}{4} \end{aligned}$$

$$\begin{array}{r} 6 \\ 4 \overline{) 25} \\ \underline{24} \\ 1 \end{array}$$

$$= 6 \frac{1}{4} \text{ cups}$$

Carlos needs $6 \frac{1}{4}$ cups of butter.