

MAT033 Pre-Algebra HW2 Solutions

Part a: Fractions I

1. Everything is a valid fraction except: $\frac{5}{-1}$ and $\frac{2}{0}$.

2. The greatest common factors are given by:

a. 6 and 10; GCF 2

b. 20 and 28; GCF 4

c. 7 and 13; GCF 1

d. 44 and 34; GCF 2

e. -12 and -42; GCF 6

3. In lowest terms the fractions are:

a. $\frac{6}{10} = \frac{3}{5}$

b. $\frac{20}{28} = \frac{5}{7}$

c. $\frac{7}{13} = \frac{7}{13}$

d. $\frac{44}{34} = \frac{22}{17}$

e. $\frac{-12}{-42} = \frac{-2}{-7} = \frac{2}{7}$

4. In lowest terms, the fractions are:

a. $\frac{16}{6} = \frac{8}{3} = 2\frac{2}{3}$

b. $\frac{23}{13} = 1\frac{10}{13}$

c. $\frac{-27}{18} = \frac{-3}{2} = -1\frac{1}{2}$

d. $\frac{32}{-12} = \frac{8}{-3} = -2\frac{2}{3}$

e. $\frac{-12}{-4} = \frac{-3}{-1} = 3$

5. a. I; $\frac{14}{7} = 2$

b. M, L; $2\frac{2}{3} = \frac{8}{3}$

c. M; $-4\frac{2}{4} = \frac{-18}{4} = \frac{-9}{2}$

6. a. $\frac{45}{60} = \frac{3}{4}$

b. $\frac{3}{24} = \frac{1}{8}$

c. $\frac{30}{365} = \frac{6}{73}$

d. $\frac{35}{100} = \frac{7}{20}$

e. $\frac{100}{3} = 33\frac{1}{3}$ cents.

7.a. $\frac{6}{60} = \frac{1}{10}$

b. $\frac{-15}{60} = -\frac{1}{4}$

c. $10\frac{25}{60} = 10\frac{5}{12}$

d. $-24 + 1\frac{32}{60} = -22\frac{7}{15}$

8. a. The LCD is 99 so: $\frac{4}{9} = \frac{44}{99}$ and $\frac{5}{11} = \frac{45}{99}$. Therefore, $\frac{5}{11}$ is larger.

b. The LCD is 189 so: $\frac{-11}{27} = \frac{-77}{189}$ and $\frac{-3}{7} = \frac{-81}{189}$. Therefore, $\frac{-11}{27}$ is larger.

9. a. There are many acceptable answers. One answer is $\frac{89}{198}$.

b. There are many acceptable answers. One answer is $\frac{-79}{189}$.

c. There are many acceptable answers. One answer is $\frac{3142}{1000} = 3\frac{142}{1000} = 3\frac{71}{500}$

10. If we let x equal the amount that Linda eats, then Jane eats $2x$. Therefore $2x + x = 1$. The solution to this is $3x = 1$ which implies that $x = \frac{1}{3}$. Therefore, Linda eats $1/3$ of the apple while Jane eats $2/3$ of the apple. Jim wants to eat more than Linda but less than Jane so he could eat an apple amount between $\frac{2}{6}$ and $\frac{4}{6}$. Thus Jim could eat $\frac{3}{6} = \frac{1}{2}$ of the apple.

Part b: Adding & subtracting fractions

Prob 1.

a. $\frac{12}{13}$

b. $\frac{4}{4} = 1$

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

d. $\frac{6}{16} = \frac{3}{8}$

e. $\frac{-3}{7}$

f. $\frac{16}{36} = \frac{4}{9}$

Prob. 2

a. $\frac{5}{30} + \frac{8}{30} = \frac{13}{30}$

b. $\frac{10}{85} + \frac{68}{85} = \frac{78}{85}$

c. $\frac{60}{55} - \frac{13}{65} = \frac{47}{65}$

d. $\frac{30}{540} + \frac{126}{540} = \frac{156}{540} = \frac{78}{270} = \frac{39}{135} = \frac{13}{45}$

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

f. $\frac{209}{323} - \frac{187}{323} = \frac{22}{323}$

Prob. 3

a. $\frac{36}{30} + \frac{5}{30} = \frac{41}{30}$

b. $\frac{26}{7} - \frac{12}{7} = 2$

c. $\frac{59}{8} + \frac{12}{8} = \frac{71}{8}$

d. $\frac{88}{28} - \frac{133}{28} = -\frac{45}{28}$

e. $\frac{39}{8} - \frac{29}{8} = \frac{5}{4}$

f. $8\frac{11}{12} - 1\frac{6}{12} = 7\frac{5}{12} = \frac{89}{12}$

Prob. 4

The cake is divided into 9 pieces. Hence, each piece of the cake is $1/9$. If you and your friend each take two pieces, then you've taken 4 pieces and thus there is $9/9 - 4/9 = 5/9$ the cake left.