

## 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.