



Math Olympiad and Problem Solving Programs  
F130 - Advanced Problem Solving  
Problem Set 9.3 - Fractions

Name:

Date:

1.  $1\frac{1}{2}$  lb
2. Anita has  $\frac{7}{10} \times 140 = 98$  cookies. Honor has  $140 - 98 = 42$  more cookies than Anita.
3. \$4
4. The computer weighs  $\frac{34}{3}$  pounds. The printer weighs  $\frac{7}{8} \times \frac{34}{3} = \frac{119}{12}$  pounds. Their total weight is  $\frac{34}{3} + \frac{119}{12} = \frac{85}{4} = 21\frac{1}{4}$  lbs
5. \$8,000
6. Before Jason fed the baby ducks, he had  $27 + 18 = 45$  pieces left. He had already given away  $\frac{3}{8} + \frac{2}{5} = \frac{31}{40}$  of his bread. This means the 45 pieces left was  $\frac{9}{40}$  of the bread he began with. Jason had  $45 \times \frac{40}{9} = 200$  pieces to begin with.
7. Alex spent  $\frac{1}{18} \times \$3600 = \$200$  on a TV,  $\frac{1}{12} \times \$3600 = \$300$  on a Wii, and \$300 on math books. He had a remainder of  $\$3600 - \$200 - \$300 - \$300 = \$2800$  left. Of this amount, he gave  $\frac{7}{20} \times \$2800 = \$980$  to his sister.
8. She had  $\frac{4}{25} \times 5000 = 800$  pieces of chocolate,  $\frac{3}{20} \times 5000 = 750$  pieces of candy corn, and  $\frac{1}{10} \times 5000 = 500$  pieces of Wonka candies. She had a remainder of  $5000 - 800 - 750 - 500 = 2950$  pieces of candy. Of the remainder,  $\frac{1}{5} \times 2950 = 590$  were lollipops. She had  $800 - 590 = 210$  more chocolates than lollipops.
9.  $\frac{1}{6} + \frac{5}{12} = \frac{7}{12}$  of Cecily's Legos are red or blue. She has a remainder of  $1 - \frac{7}{12} = \frac{5}{12}$  Legos. Of those,  $\frac{2}{5} \times \frac{5}{12} = \frac{1}{6}$  are black. Since she has 10 black Legos, she has a total of  $\frac{6}{1} \times 10 = 60$  Legos. This means she has  $\frac{5}{12} \times 60 = 25$  blue Legos and  $\frac{1}{6} \times 60 = 10$  red Legos. She has  $25 - 10 = 15$  more blue Legos than red.
10. After Emmett spent  $\frac{2}{11}$  of his money, he had  $1 - \frac{2}{11} = \frac{9}{11}$  of his money left. This was three times as much money as Edward so Edward has  $\frac{1}{3} \times \frac{9}{11} = \frac{3}{11}$  of the amount of money that Emmett has.  
If we let Emmett have  $e$  dollars, then Edward has  $\frac{3}{11}e$  dollars. Together they have  $e + \frac{3}{11}e = 70$  dollars.  $e = 55$  so at first Emmett had \$55 and Edward had \$15. Emmett had  $\$55 - \$15 = \$40$  more than Edward at first.