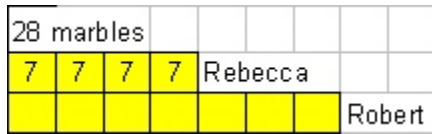


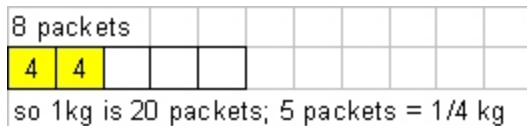
1. Rebecca has $\frac{4}{7}$ as many marbles as Robert. If Rebecca has 28 marbles, how many marbles do they have in all?



Each unit 7 marbles so Robert has 49 marbles and they have $49 + 28 = 77$ together

$$\frac{4}{7}x = 28 \quad x = \frac{28}{1} \cdot \frac{7}{4} = \frac{7}{1} \cdot \frac{7}{1} = 49$$

2. 8 packets of candy weigh $\frac{2}{5}$ kg altogether. How much do 5 packets of candy weigh altogether?



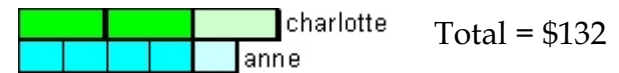
$$\frac{2}{5} \div \frac{8}{1} = \frac{8}{20} \div \frac{8}{1} = \frac{1}{20} \text{ kg each pkt}$$

19. Allan and Brad had \$70 altogether. After Allan spent $\frac{2}{11}$ of his money, he had three times as much money as Brad. How much more money did Allan have than Brad at first?



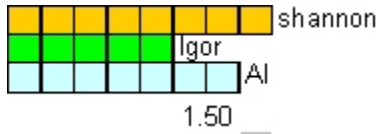
11 units - spent 2 of them which leaves 9 units
 9 units divided by 3 means 3 units for Brad.
 Total units is 14 so \$70 divided by 14 = \$5 each unit.
 Brad had $\$5 * 3 = \15 and Allan had $11 * \$5 = \55 .
 $\$55 - \$15 = \$40$ more.

20. $\frac{4}{5}$ of Anne's savings is equal to $\frac{2}{3}$ of Charlotte's savings. If their **total savings is \$132**, how much is Charlotte's savings?



11 units = \$132, so 1 unit = $132 \div 11 = \$12$
Charlotte's = $\$12 * 6 = \72
 (Anne's = $\$12 * 5 = \60)

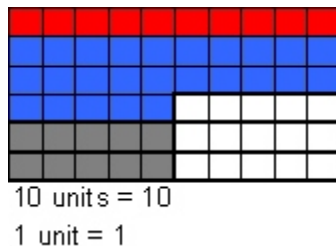
17. Shannon, Igor, and Al shared a sum of money. Shannon received $\frac{2}{5}$ of the money, Igor received $\frac{1}{4}$ of the money, and Al received the rest of the money. If Al received \$1.50 more than Igor, how much more money did Shannon receive than Al?



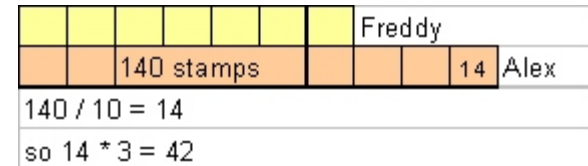
Two units = \$1.50 so one unit = \$0.75
 Shannon received $\$0.75 \times 8 = \6.00
 Al received $\$0.75 \times 7 = \5.25
 so **Shannon received \$0.75 more than Al**

18. $\frac{1}{6}$ of a box of paper clips are red, $\frac{5}{12}$ of them are blue, and $\frac{2}{5}$ of the remainder are black. If there are 10 black paper clips, how many more blue paper clips are there than red?

25 blue - 10 red
15 more blue clips



3. Freddy has $\frac{7}{10}$ as many stamps as Alex. If Alex has 140 stamps, how many more stamps does he have than Freddy?

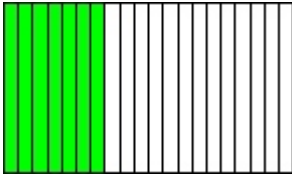


4. Kelsey had \$30. She spent $\frac{3}{10}$ of it on a T-shirt and $\frac{2}{3}$ of it on a skirt. How much more did she pay for the skirt than for the T-shirt?

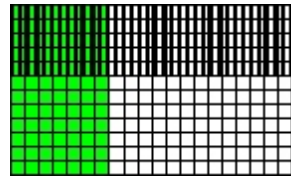


$$\frac{3}{10} \text{ of } \frac{30}{1} = \$9 \quad \frac{2}{3} \text{ of } \frac{30}{1} = \$20$$

5. Mike had \$60. He used $\frac{7}{20}$ of his money to buy a pair of swimming goggles and $\frac{5}{12}$ of it to buy a racket. How much more did the racket cost than the swimming goggles?



Each unit = $60 \div 20 = \$3$

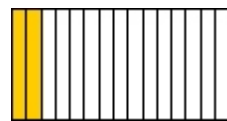
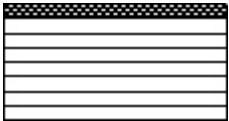


each unit = $60 \div 12 = \$5$

$$\frac{7}{20} \text{ of } \$60 = \$21 \quad \frac{5}{12} \text{ of } \$60 = \$25$$

\$25 racket - \$21 goggles = \$4 more

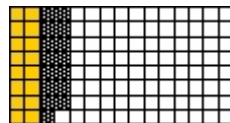
6. Holly spends $\frac{1}{8}$ of her monthly income on rent and $\frac{2}{15}$ of it for transportation. If her monthly income is \$960, how much more does she have left after she pays for her rent and transportation?



$$\frac{1}{8} \text{ of } 960 = \$120 \quad \frac{2}{15} \text{ of } 960 = \$128$$

$$\$120 + \$128 = \$248$$

$$\$960 - \$248 = \mathbf{\$712}$$



$$\frac{15}{120} + \frac{16}{120} = \frac{31}{120} \quad \frac{89}{120} \text{ of } 960 = \frac{89}{1} \text{ of } \frac{8}{1} = \$712$$

15. Blue pens were sold at 3 for \$1, red pens at 4 for \$1.20, and black pens at 5 for \$2. Maggie bought 5 dozen pens. If $\frac{3}{10}$ of the pens which she bought were blue, $\frac{1}{5}$ of them were red and the rest were black, how much did she pay for all the pens?

5 dozen pens = 60 pens

$$\frac{3}{10} \text{ of } 60 = 18 \quad 18 \div 3 = 6 * \$1 = \$6.00$$

$$\frac{1}{5} \text{ of } 60 = 12 \quad 12 \div 4 = 3 * \$1.20 = \$3.60$$

$$\text{remaining pens} = 60 - (18 + 12) = 30 \div 5 = 6 * 2 = \$12.00$$

$$\$12.00 + \$6.00 + \$3.60 = \mathbf{\$21.60 \text{ cost for all pens}}$$

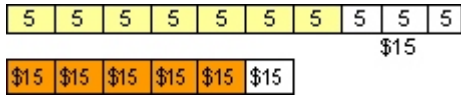
16. A bag of potatoes weighs $\frac{7}{8}$ kg. A bag of onions weighs $\frac{4}{5}$ times as much as the bag of potatoes. Find the total weight of the bag of potatoes and the bag of onions.

$$\frac{4}{5} \text{ of } \frac{7}{8} \text{ kg} = \frac{1}{5} * \frac{7}{2} = \frac{7}{10} \text{ kg} \quad \text{weight of onions}$$

$$\frac{7}{8} \text{ kg} + \frac{7}{10} \text{ kg} = \frac{35}{40} + \frac{28}{40} = \frac{63}{40} = \mathbf{1 \frac{23}{40} \text{ kg}}$$



13. After Heather spent $\frac{7}{10}$ of her money and Chris spent $\frac{5}{8}$ of his money, they each had \$15 left. How much money did they spend altogether?



Heather: 1 unit = \$5 she spent $5 * 7 = \$35$
 Chris: 1 unit = \$15 he spent $15 * 4 = \$60$
 Together spent $\$60 + \$35 = \mathbf{\$95}$

14. Danielle saved \$5,000 for a tour. She spent $\frac{4}{25}$ on a hotel room, $\frac{3}{20}$ on airfare, $\frac{1}{10}$ of it on shopping, and $\frac{1}{5}$ of the remainder on food. How much more did she spend on the hotel room than on food?

$$\frac{4}{25} * 5000 = \frac{4}{1} * \frac{200}{1} = \$800 \text{ Hotel}$$

$$\frac{3}{20} * 5000 = \frac{3}{1} * \frac{250}{1} = \$750 \text{ airfare}$$

$$\frac{1}{10} * 5000 = \frac{1}{1} * \frac{500}{1} = \$500 \text{ shopping}$$

$$800 + 750 + 500 = \$2050 \text{ cost}$$

$$5000 - \$2050 = \$2950 \text{ remaining money}$$

$$\frac{1}{5} * 2950 = \$590 \text{ food}$$

Hotel \$800 - food \$590 = **\$210 more on hotel**

7. John has $\frac{7}{12}$ as many stickers as Lauren. If Lauren has **48** stickers, how many fewer stickers does John have than Lauren?

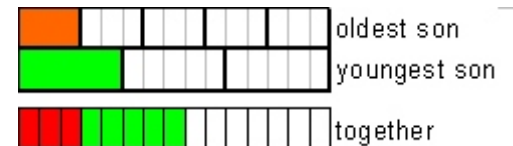


$$48 \div 12 = 4 \quad \text{so } 4 * 7 = \mathbf{20 \text{ fewer stickers}}$$

or

$$\frac{5}{12} \text{ of } 48 = \frac{5}{1} \text{ of } \frac{4}{1} = 20$$

8. A foolish mother gave $\frac{1}{5}$ of her money to her oldest son, $\frac{1}{3}$ of it to her youngest son, and shared the rest of it between her twin daughters. If she had **\$615,000**, how much money did she give to each of her twin daughters?



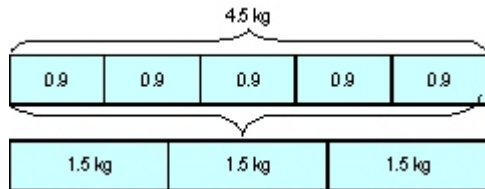
$$\$615,000 \div 1000 = \$615$$

$$\$615 \div 15 = \$41 \quad \$41 * 7 = \$287 \div 2 = 143.50$$

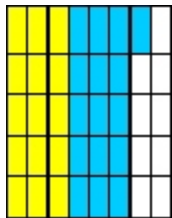
$$\text{so } \$143.50 * 100 = \mathbf{\$143,500} \text{ for each daughter}$$

9. Matthew had 5 packets of sugar, each weighing $\frac{9}{10}$ kg. He re-packed them into 3 equal bags. Find the weight of each bag of sugar.

$$\frac{9}{10} * 5 = \frac{9}{2} = 4.5 \text{ kg} \quad 4.5 \div 3 = 1.5 \text{ kg}$$



10. Kathy won a cash prize in a contest. She spent $\frac{3}{8}$ of it on a washing machine, $\frac{2}{5}$ of it on a refrigerator, and **\$180** on a fan. If she had **\$270 left**, how much was the cash prize which she won?

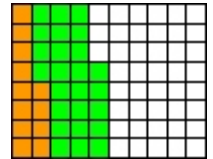


$$\$270 + \$180 = \$450$$

$$\frac{3}{8} + \frac{2}{5} = \frac{15}{40} + \frac{16}{40} = \frac{31}{40} \text{ so } \frac{9}{40} = \$450$$

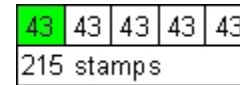
$$\frac{9}{40} x = 450 \text{ so } 450 * \frac{40}{9} = \$2000$$

11. Will had 400 stamps. He gave $\frac{3}{20}$ of them to Sam, $\frac{5}{16}$ of them to Nick, and $\frac{1}{7}$ of the remainder to David. How many stamps did he have left?



$$\frac{3}{20} = \frac{12}{80} \text{ and } \frac{5}{16} = \frac{25}{80} \text{ so } \frac{37}{80} \text{ gave away}$$

$$\frac{43}{80} \text{ of } 400 = \frac{5}{1} \text{ of } \frac{43}{1} = 215 \text{ stamps left}$$



$$215 - 43 = 172 \text{ stamps left}$$

12. Caitlin's monthly income is \$3,600. She spent $\frac{1}{18}$ of it on rent, $\frac{1}{12}$ on food, \$300 on entertainment, and saved the remainder in her bank account. How much money did she save each month?

$$\frac{1}{18} \text{ of } 3600 = \$200 \quad \frac{1}{12} \text{ of } 3600 = \$300$$

$$\$200 + \$300 + \$300 = \$800 \text{ spent every month}$$

$$\$3600 - \$800 = \text{\$2800 saved each month}$$

21. In a class of 40 students, $\frac{3}{8}$ of them play only soccer, $\frac{2}{5}$ of them play only softball, and $\frac{3}{20}$ only play volleyball. If $\frac{3}{5}$ of those who play soccer now also play volleyball, and $\frac{1}{4}$ of those who only play softball now also play volleyball, how many pupils play volleyball altogether?

$$\frac{15}{40} \text{ soccer} \quad \frac{16}{40} \text{ softball} \quad \frac{6}{40} \text{ volleyball}$$

$$\frac{3}{5} \text{ of } 15 = 9 \quad \frac{1}{4} \text{ of } 16 = 4$$

$$6 + 9 + 4 = 19 \text{ students}$$

22. Last month, Linda withdrew $\frac{1}{8}$ of her savings from the bank. She spent \$225 and had \$175 left. This month, she deposited $\frac{1}{3}$ of her salary in the bank and her savings in the bank went back to \$3350. Find her monthly salary.

$$400 * 8 = \$3200$$



Withdrew \$400 which is $\frac{1}{8}$ of her savings. She was left with \$2800 in the bank. If she deposited enough money to bring her balance back up to



$$225 + 175 = 400$$

\$3350, then $\frac{1}{3}$ of her salary is $\$3350 - \$2800 = \$550$.

$\$550 * 3 = \1650 monthly salary.

My Problem Solving Book



												mike					
												peter					
														irene			