

Problem solving – fractions of amounts

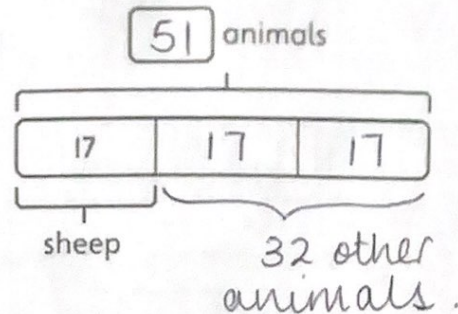
- 1 $\frac{1}{3}$ of the animals in a field are sheep. There are 17 sheep in the field.

How many animals are in the field?

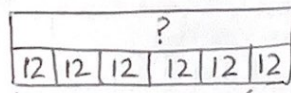
17 sheep = $\frac{1}{3}$ of the animals

$$17 \times 3 = 51$$

There are 51 animals in the field.



- 2 $\frac{5}{6}$ of a number is 60. What is the number?

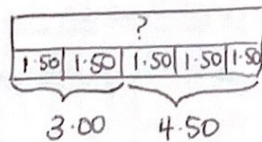


$$\frac{5}{6} = 60$$

$$60 \div 5 = \frac{1}{6} = 12$$

$$12 \times 6 = \underline{\underline{72}}$$

- 3 Danny spends $\frac{2}{5}$ of his pocket money on a magazine. The magazine costs £3. How much pocket money does he get?



$$\frac{2}{5} = \pounds 3, \text{ so } \frac{1}{5} = \pounds 1.50 (\pounds 3 \div 2)$$

$$\pounds 1.50 \times 5 = \underline{\underline{\pounds 7.50}}$$

- 4 Last week, Toshi spent £42 on a food shop. This is $\frac{1}{5}$ of his weekly wage. Holly spent £54. This is $\frac{2}{3}$ of her weekly wage. Who earns more money per week? How much more?

T

294.00					
42	42	42	42	42	42

 $\frac{42}{7} = 294$

H

243.00					
27	27	27	27	27	27

 $\frac{54}{\frac{2}{3}} = 243$

Toshi earns £51 more per week.

- 5 Use a diagram to work out the missing numbers.

- a) $\frac{1}{4}$ of

80

 = 20
- b) $\frac{3}{4}$ of

64

 = 48
- c) $180 = \frac{9}{10}$ of

200

- d) $\frac{1}{6}$ of

108

 = $\frac{2}{3}$ of 27

200					
20	20	20	20	20	20

 $180 \quad 20 \times 10 = 200$

84			
16	16	16	16

 $3 \overline{) 48} \quad 16$

27		
9	9	9

 18

108					
18	18	18	18	18	18

 $18 \overline{) 108} \quad 6$

- 6 Zac is thinking of a number. What number is Zac thinking of?

6.4							
0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

 2.4

$\frac{0.8}{8} = 6.4$

$\frac{3}{8}$ of my number is 2.4.

Zac



7 a) On Monday, Alex reads $\frac{1}{4}$ of a book. On Tuesday, she reads $\frac{3}{5}$ of the book. She has 18 pages left to read. How many pages are in her book?

$\frac{1}{4} + \frac{3}{5} = \frac{5+12}{20} = \frac{17}{20}$
 $18 = \frac{3}{20}$
 $\text{so } \frac{1}{20} = 18 \div 3 = 6 \times 20$
 $= 120 \text{ pages.}$

b) On Monday, Lee reads $\frac{1}{4}$ of a book. On Tuesday, he reads $\frac{3}{5}$ of the remaining pages. He has 18 pages left to read. How many pages are there in Lee's book?

~~$\frac{1}{4} + \frac{3}{5} = \frac{5+12}{20} = \frac{17}{20}$~~
 $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$
 $\frac{6}{20} = 18, \text{ so } \frac{1}{20} = 3 \times 20 = 60$

He reads $\frac{1}{4}$ on Mon, so has $\frac{3}{4}$ left. Once he has read $\frac{3}{5}$ of $\frac{3}{4}$, he has $\frac{2}{5}$ of $\frac{3}{4}$ left = 18

Reflect

$\frac{3}{4}$ of 60 = 45 $\frac{3}{4}$ of 80 = 60

What is the same? What is different? Work out the missing numbers.

• _____
 • Various observations
 • _____