EXERCISE 5

Ratio (1): Ratio and Fraction

[K-6-64-09-28B]

Do these sums. Show all your working clearly.

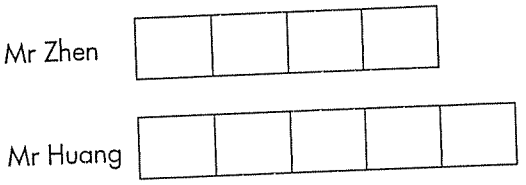
(1) There are 32 local stamps and 48 Malaysian stamps in a stamp album.
   (a) Find the ratio of the number of local stamps to the number of Malaysian stamps.

   (b) Find the ratio of the number of Malaysian stamps to the number of local stamps.

(2) There are 350 pages in book A, 500 pages in book B and 200 pages in book C.
   (a) What is the ratio of the number of pages in book A to the number of pages in book B to the number of pages in book C?

   (b) What is the ratio of the number of pages in book B to the total number of pages in books A, B and C?

(3) The income of Mr Zhen and Mr Huang are in the ratio 4 : 5.



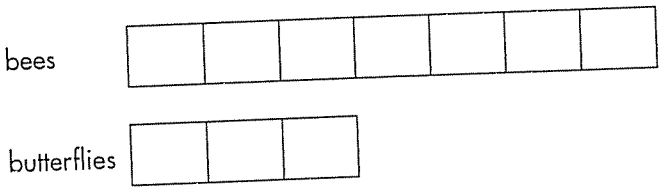
(a) What fraction of Mr Huang's income is Mr Zhen's income?

Mr Zhen's income is ☐ of Mr Huang's income.

(b) What fraction of the total income of Mr Zhen and Mr Huang is Mr Huang's income?

Mr Huang's income is ☐ of the total income of Mr Zhen and Mr Huang.

(4) The ratio of the number of bees to the number of butterflies in a picture is 7 : 3.

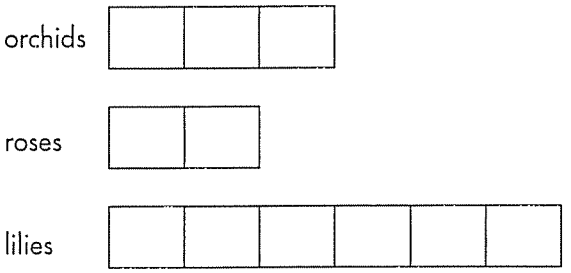


(a) Express the number of bees as a fraction of the number of butterflies.

(b) Express the number of butterflies as a fraction of the number of bees.

(c) Express the number of bees as a fraction of the total number of bees and butterflies.

(5) The ratio of the number of orchids to the number of roses to the number of lilies is 3 : 2 : 6.



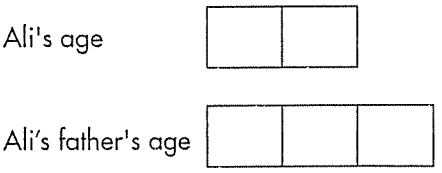
(a) What is the ratio of the total number of orchids and roses to the number of lilies?

(b) How many times as many lilies as roses are there?

(c) Express the number of orchids as a fraction of the number of lilies.

s 7 : 3.

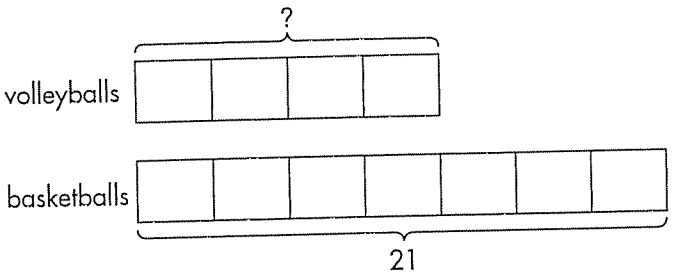
(6) Ali's age is $\frac{2}{3}$ of his father's age.



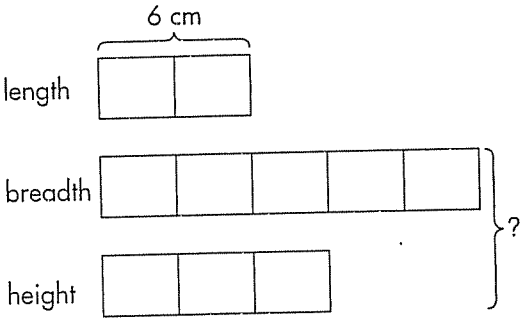
(a) What is the ratio of Ali's age to his father's age?

(b) Express Ali's father's age as a fraction of Ali's age.

(7) The ratio of the number of volleyballs to the number of basketballs in the P.E. room is 4 : 7. There are 21 basketballs. How many volleyballs are there?



(8) The length, breadth and height of a box are in the ratio 2 : 5 : 3. The length of the box is 6 cm. Find the sum of the breadth and the height of the box.



ANSWERS

Exercise 1

(1) 42 (2) \$516 (3) 31 (4) 3.2 kg

(5) $28\frac{1}{12}$ ℓ (6) 56 (7) 200

(8) 9 kg (9) \$2500 (10) $\frac{1}{11}$

Exercise 2

(1) (a) $\$(x + 53)$ (b) \$58 (c) \$63

(2) (a) $\frac{24}{y}$ (b) 8 (c) 6

(3) (a) $\$(m - 2.50)$ (b) \$7.50 (c) \$3

(4) (a) $5L$ cm² (b) 40 cm² (c) 60 cm²

(5) (a) $\$12(S - 1500)$ (b) \$9600 (c) \$15 600

(6) (a) $\left(\frac{N}{5} - 100\right)$ g (b) 1200 g (c) 1700 g

Exercise 3

A (1) 7 (2) 28 (3) 100 (4) 5
(5) 4 (6) 9 (7) 80 (8) 25

B (1) 45 (2) 35 (3) 1 (4) 3
(5) 105 (6) 192 (7) 11 (8) 10

C (1) $2m$ (2) $3N$ (3) $6p$ (4) $9q$
(5) $5b$ (6) $12a$ (7) $7g$ (8) $8e$
(9) $10z - 5$ (10) $5t - 6$ (11) $f - 6$
(12) $8d + 1$ (13) $3 + 2a$ (14) $2h + 2$
(15) $8k$ (16) $15 - r$

Exercise 4

(1) (a) 6 (b) 5 (c) 3 (d) 5
(2) b, c (3) a, d (4) b (5) b

Exercise 5

(1) (a) 2 : 3 (b) 3 : 2

(2) (a) 7 : 10 : 4 (b) 10 : 21

(3) (a) $\frac{4}{5}$ (b) $\frac{5}{9}$

(4) (a) $\frac{7}{3}$ (b) $\frac{3}{7}$ (c) $\frac{7}{10}$

(5) (a) 5 : 6 (b) 3 (c) $\frac{1}{2}$

(6) (a) 2 : 3 (b) $\frac{3}{2}$

(7) 12 (8) 24 cm (9) 27, 18, 45

(10) (a) 4 : 5 (b) 125

(11) $14\frac{1}{2}$ kg (12) 900 m²

Exercise 6

(1) 30 (2) 50 g

(3) $12\frac{8}{9}$ cm, $9\frac{2}{3}$ cm, $6\frac{4}{9}$ cm

(4) 160 cm (5) 52 (6) 140

Exercise 7

(1) 5 : 2 (2) \$25 (3) 40 (4) 600
(5) 140 m (6) Team A: 210, Team B: 90

Exercise 8

A (1) $37\frac{1}{2}$% (2) 44% (3) 38% (4) 60%

B (1) 25% (2) 40% (3) $62\frac{1}{2}$%

C (1) 32% (2) 10% (3) 20% (4) $37\frac{1}{2}$%
(5) 80% (6) $12\frac{1}{2}$% (7) 40% (8) 60%

D (1) $\frac{1}{25}$ (2) $\frac{2}{25}$ (3) $\frac{17}{100}$ (4) $\frac{3}{10}$
(5) $\frac{73}{100}$ (6) $\frac{4}{5}$ (7) $\frac{99}{100}$ (8) 1

E (1) 50% (2) 1% (3) 26% (4) 48%
(5) 1.2% (6) 0.7% (7) 40.3% (8) 39.1%

F (1) 0.03 (2) 0.06 (3) 0.07 (4) 0.29
(5) 0.33 (6) 0.56 (7) 0.7 (8) 0.9

Exercise 9

(1) 20% (2) 40% (3) 50% (4) 75%
(5) 60% (6) 25% (7) 18% (8) 8%
(9) 16% (10) 49% (11) 20% (12) 15%

Exercise 10

(1) 8% (2) 52% (3) 30% (4) 32%
(5) 25% (6) 160% (7) 20% (8) 120%
(9) 270% (10) 150%

Exercise 11

(1) \$15.60 (2) \$646 (3) 36

(4) 94.5 kg (5) $9\frac{1}{11}$% (6) \$2662.50

(7) 1750 (8) \$40 (9) 300
(10) \$1050 (11) 60 (12) 24