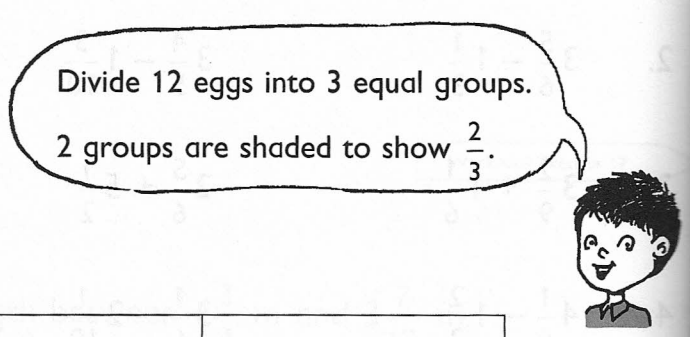
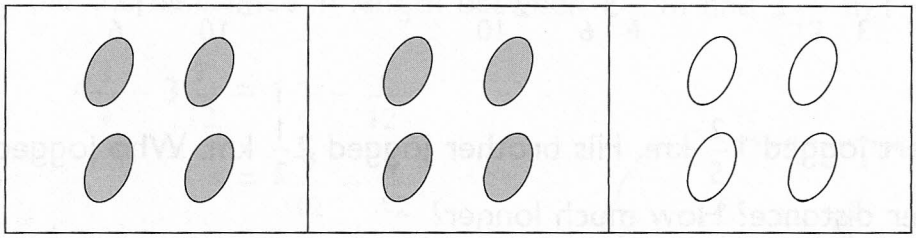
4 Product of a Fraction and a Whole Number

Lihua bought 12 eggs. She used $\frac{2}{3}$ of them to bake a cake. How many eggs did she use?

Method 1:

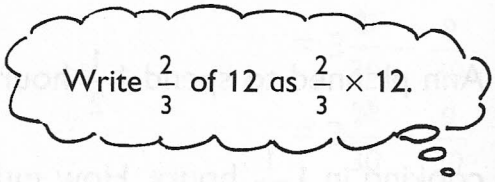




$\frac{2}{3}$ of 12 = ■

She used ■ eggs.

Method 2:



$\frac{2}{3} \times 12 = \frac{2 \times 12}{3}$

= ■

She used ■ eggs.

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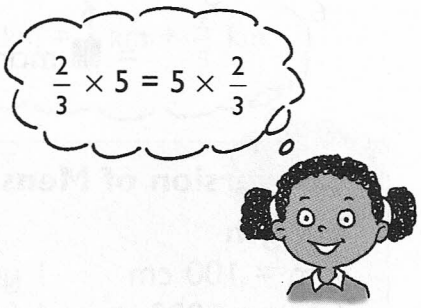
1. (a) Multiply $\frac{2}{3}$ by 5.

$$\frac{2}{3} \times 5 = \frac{2 \times 5}{3}$$

$$= \blacksquare$$



(b) Multiply 5 by $\frac{2}{3}$.

$$5 \times \frac{2}{3} = \frac{5 \times 2}{3}$$

$$= \blacksquare$$

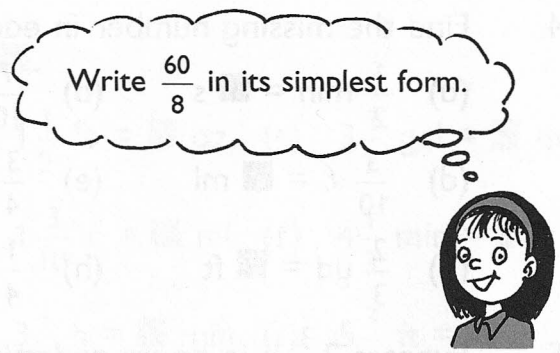
2. Find the value of $\frac{3}{8} \times 20$.

Method 1:

$$\frac{3}{8} \times 20 = \frac{3 \times 20}{8}$$

$$= \frac{60}{8}$$

$$= \blacksquare$$

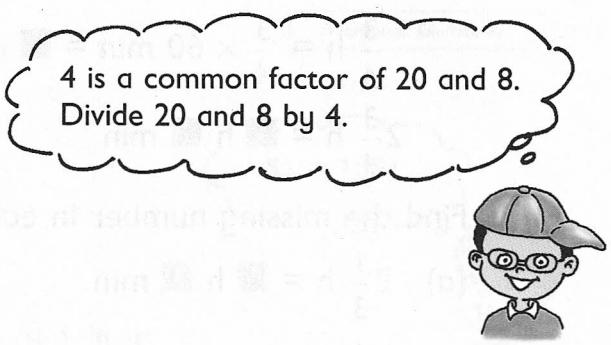


Method 2:

$$\frac{3}{8} \times 20 = \frac{3 \times \overset{5}{\cancel{20}}}{\underset{2}{\cancel{8}}}$$

$$= \frac{3 \times 5}{2}$$

$$= \blacksquare$$



Method 3:

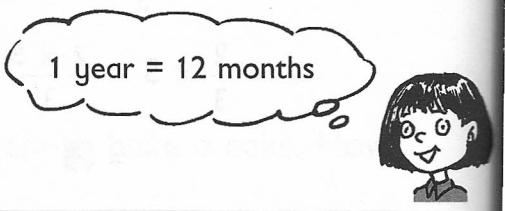
$$\frac{3}{\underset{2}{\cancel{8}}} \times \overset{5}{\cancel{20}} = \frac{3 \times 5}{2}$$

$$= \blacksquare$$

3. How many months are there in $\frac{5}{6}$ of a year?

$\frac{5}{6}$ of a year = $\frac{5}{6} \times 12$ months

= ■ months



Conversion of Measurements

Length

1 m = 100 cm
1 km = 1000 m
1 yd = 3 ft
1 ft = 12 in.
1 mi = 5280 ft

Weight

1 kg = 1000 g
1 lb = 16 oz

Volume of liquid/capacity

1 ℓ = 1000 ml
1 gal = 4 qt
1 qt = 2 pt
1 qt = 4 c

Time

1 year = 12 months
1 week = 7 days
1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds

4. Find the missing number in each ■.

(a) $\frac{1}{2}$ min = ■ s
(b) $\frac{7}{10}$ kg = ■ g
(c) $\frac{2}{5}$ km = ■ m
(d) $\frac{3}{10}$ ℓ = ■ ml
(e) $\frac{3}{4}$ year = ■ months
(f) $\frac{1}{6}$ h = ■ min
(g) $\frac{2}{3}$ yd = ■ ft
(h) $\frac{1}{4}$ lb = ■ oz
(i) $\frac{3}{4}$ gal = ■ qt

5. Express $2\frac{3}{4}$ h in hours and minutes.

$\frac{3}{4}$ h = $\frac{3}{4} \times 60$ min = ■ min

$2\frac{3}{4}$ h = ■ h ■ min

6. Find the missing number in each ■.

(a) $2\frac{1}{3}$ h = ■ h ■ min
(b) $4\frac{2}{3}$ yd = ■ yd ■ ft
(c) $5\frac{1}{4}$ gal = ■ gal ■ qt
(d) $3\frac{1}{2}$ km = ■ km ■ m
(e) $14\frac{9}{10}$ ℓ = ■ ℓ ■ ml
(f) $6\frac{1}{4}$ years = ■ years ■ mont

Workbook Exercise 19

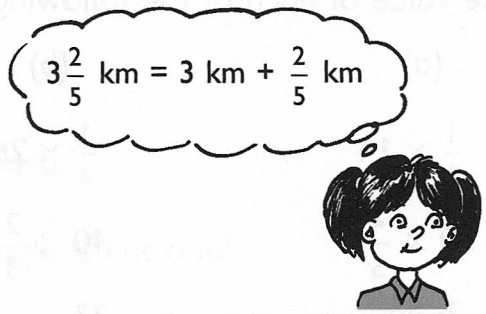
7. Express $3\frac{2}{5}$ km in meters.

$3 \text{ km} = 3000 \text{ m}$

$\frac{2}{5} \text{ km} = \frac{2}{5} \times 1000 \text{ m}$

$= \blacksquare \text{ m}$

$3\frac{2}{5} \text{ km} = \blacksquare \text{ m}$



8. Express $2\frac{1}{4}$ days in hours.

$2 \text{ days} = \blacksquare \text{ h}$

$\frac{1}{4} \text{ day} = \blacksquare \text{ h}$

$2\frac{1}{4} \text{ days} = \blacksquare \text{ h}$

9. Find the missing number in each ■.

(a) $2\frac{1}{2}$ m = ■ cm (b) $1\frac{1}{2}$ lb = ■ oz (c) $3\frac{1}{2}$ gal = ■ qt

(d) $2\frac{3}{4}$ years = ■ months (e) $1\frac{3}{10}$ ℓ = ■ ml (f) $4\frac{1}{3}$ min = ■ s

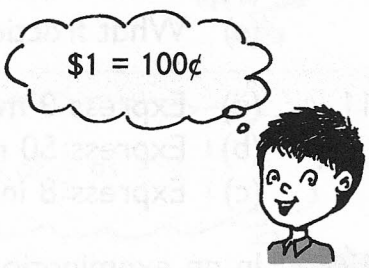
(g) $2\frac{1}{10}$ km = ■ m (h) $3\frac{1}{3}$ h = ■ min (i) $5\frac{3}{4}$ ft = ■ in.

Workbook Exercise 20

10. (a) What fraction of \$2 is 80¢?

\$2 = 200¢

$\frac{80}{200} = \blacksquare$



(b) Express 600 ml as a fraction of 1 liter.
(c) Express 90 cm as a fraction of 3 m.
(d) Express 45 seconds as a fraction of 1 minute.
(e) Express 50 minutes as a fraction of 2 hours.

Workbook Exercise 21

PRACTICE 3D

Find the value of each of the following in its simplest form.

	(a)	(b)	(c)
1.	$\frac{1}{2} \times 14$	$\frac{1}{4} \times 26$	$\frac{2}{5} \times 40$
2.	$30 \times \frac{4}{5}$	$40 \times \frac{2}{3}$	$15 \times \frac{5}{9}$
3.	$\frac{7}{3} \times 21$	$\frac{13}{5} \times 20$	$40 \times \frac{9}{8}$

Find the missing number in each ■.

	(a)	(b)
4.	$\frac{2}{3}$ h = ■ min	$\frac{3}{5}$ kg = ■ g
5.	$\frac{4}{5}$ m = ■ cm	$\frac{9}{10}$ km = ■ m
6.	$8\frac{3}{4}$ years = ■ years ■ months	$3\frac{3}{5}$ ℓ = ■ ℓ ■ ml
7.	$9\frac{1}{4}$ lb = ■ lb ■ oz	$5\frac{1}{3}$ h = ■ h ■ min
8.	$3\frac{1}{2}$ ft = ■ in.	$4\frac{1}{4}$ gal = ■ qt
9.	$2\frac{7}{10}$ km = ■ m	$4\frac{2}{3}$ days = ■ h

10. (a) What fraction of \$1 is 90¢?
    (b) What fraction of 2 ℓ is 750 ml?
    (c) What fraction of 3 lb is 12 oz?

11. (a) Express 9 months as a fraction of 1 year.
    (b) Express 50 minutes as a fraction of 2 hours.
    (c) Express 8 in. as a fraction of 2 ft.

12. In an examination, 40 out of 44 students passed. What fraction of the students passed the examination?

13. Holly earns \$350 a month. She saves \$70 each month. What fractio of her earnings does she save?

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