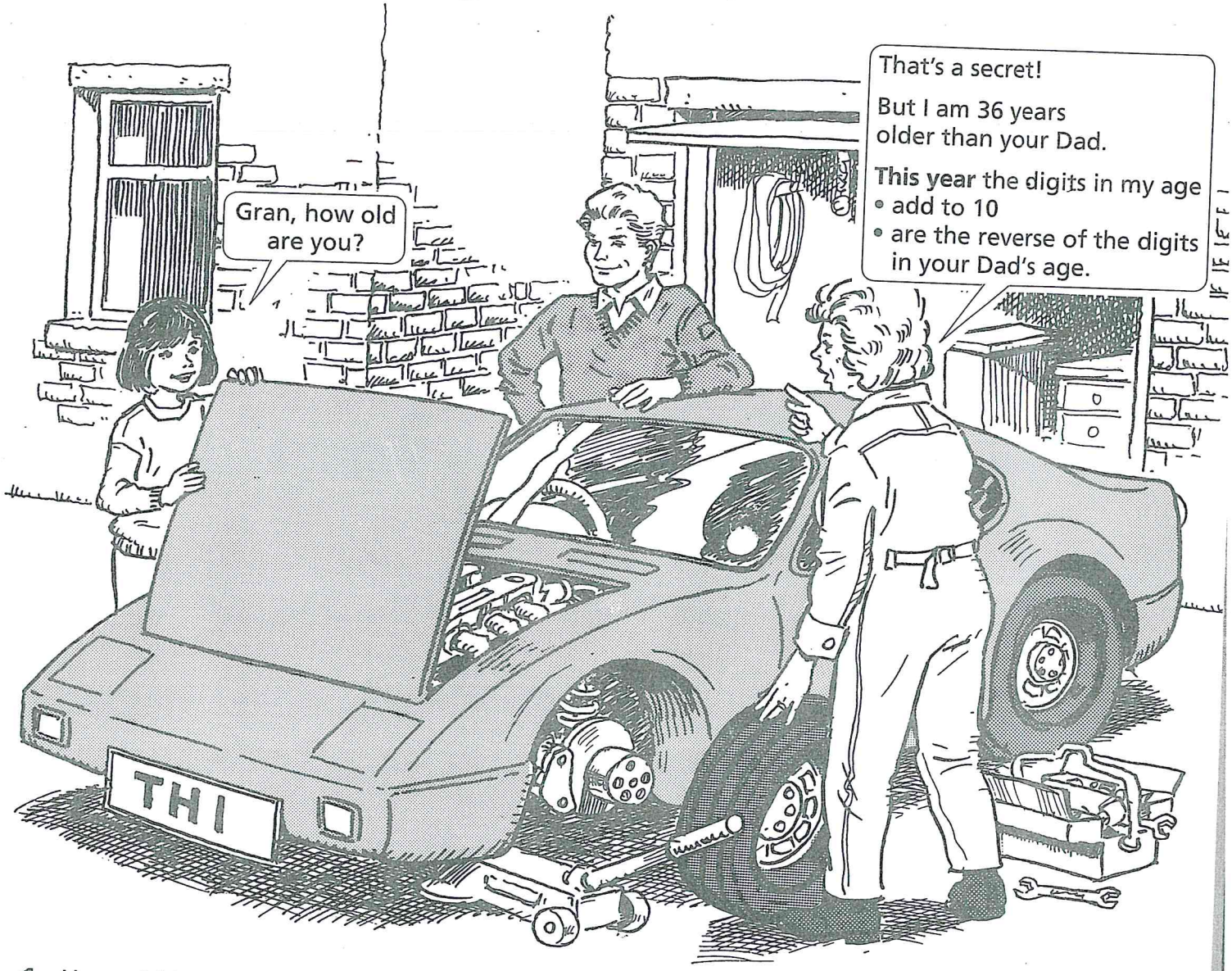
5 Gran's age

Problem solving activity



1 How old is Gran this year?

2 (a) How old were Gran and Dad on each of these occasions?

(b) What do you notice about the difference between the digits for each of these ages?

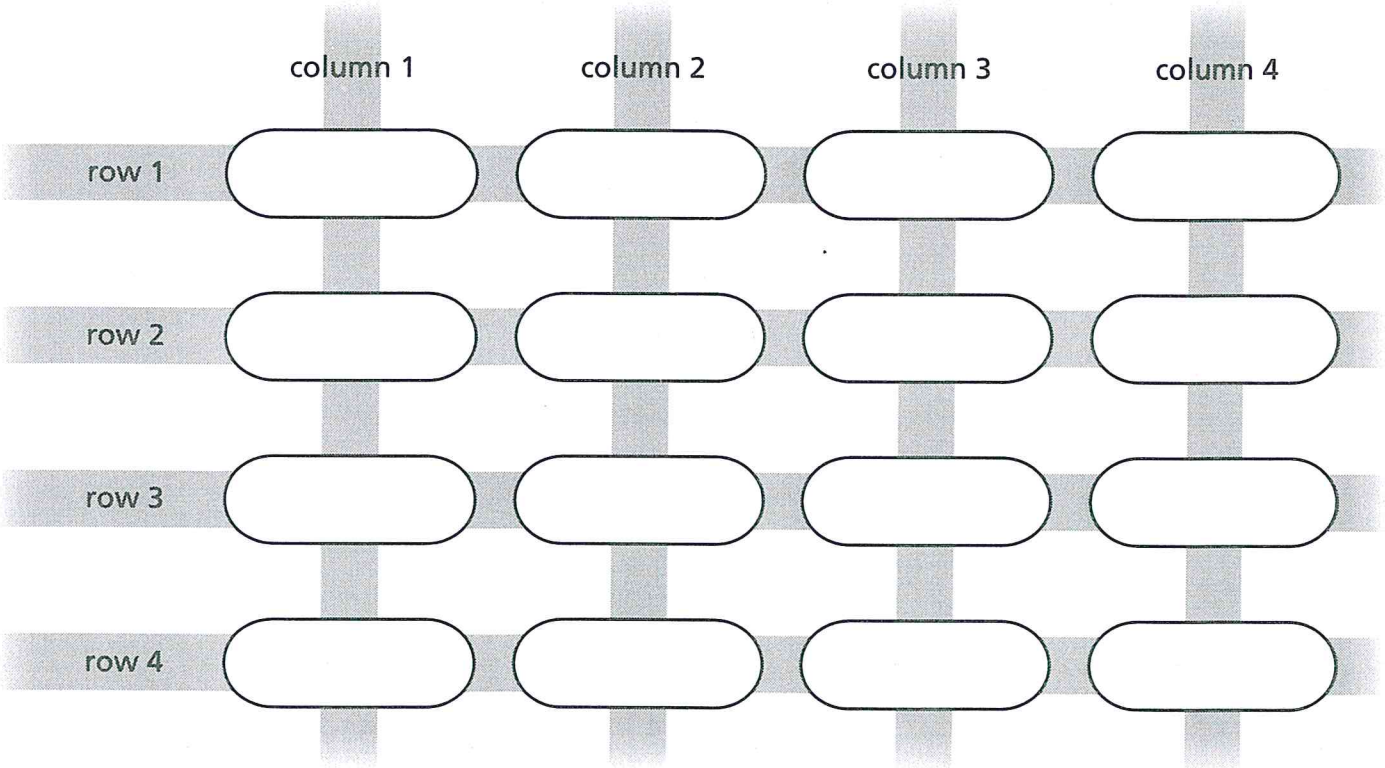
(c) What age will Gran and Dad be when this next happens?

6 Number cells

Name _____

Use the **clues** to place each number in the cells below.

31	36	45	46	47	49	50	53
54	54	55	56	58	60	65	75

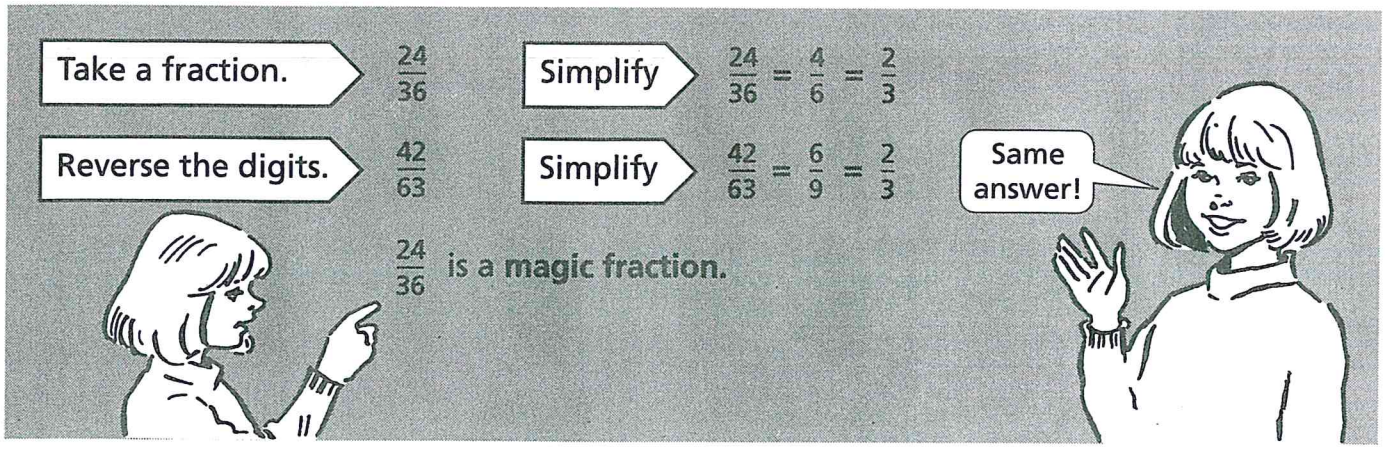


Clues

- The number in row 4, column 3 is 75.
- The number in row 3, column 2 is $(8 \times 7) - 10$.
- The numbers in column 4 are consecutive even numbers.
- The numbers in row 2 are consecutive numbers.
- The number in row 4, column 1 is a multiple of 7.
- The sum of the numbers in row 4 is 220.
- The number in row 1, column 2 is an even number.
- All the numbers in column 3 are multiples of 5.
- The sum of the numbers in row 1 is 24 less than the sum of the numbers in row 4.

7 Magic fractions

Problem solving activity



1 (a) Take $\frac{24}{48}$ and simplify it.

(b) Reverse the digits to give $\frac{42}{84}$ and simplify.

(c) Is $\frac{24}{48}$ a magic fraction?

2 Which of these are magic fractions?

(a) $\frac{36}{48}$ (b) $\frac{12}{24}$ (c) $\frac{12}{18}$ (d) $\frac{25}{45}$ (e) $\frac{12}{36}$

3 (a) $\frac{24}{36}$ is a magic fraction.

Multiply 2 × 6 and 4 × 3.
What do you notice?

(b) $\frac{24}{48}$ is a magic fraction.

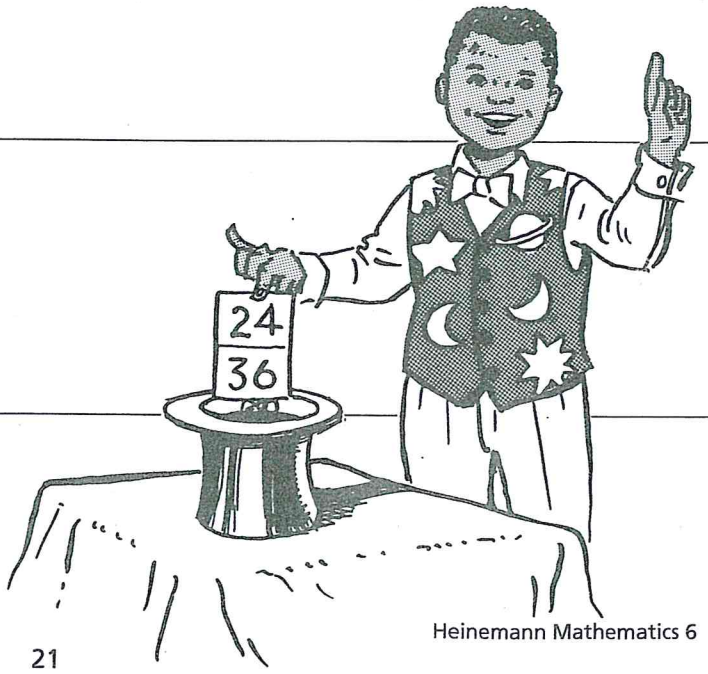
Multiply 2 × 8 and 4 × 4.
What do you notice?

4 In the same way, investigate these fractions from question 2.

(a) $\frac{36}{48}$ (b) $\frac{12}{24}$ (c) $\frac{12}{18}$ (d) $\frac{25}{45}$ (e) $\frac{12}{36}$

5 Write about magic fractions.

6 Make up two more magic fractions.



10 Change

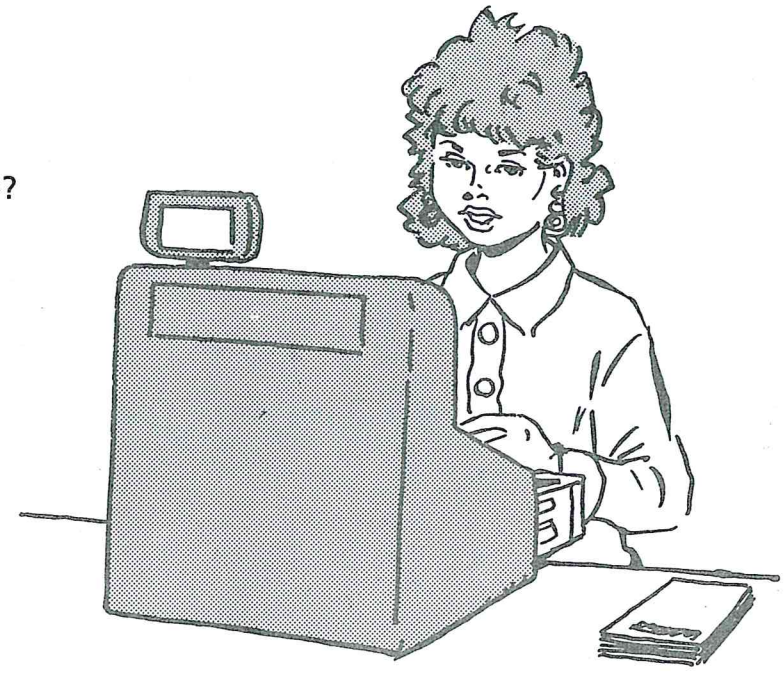
Problem solving activity

1 Lena and Ben went shopping.
Lena spent 3 times as much as Ben.
They each paid with a £10 note.
Ben's change was seven times as much as Lena's.
How much did each spend?

2 Louise has eight coins.
She says she can give change for any amount from 1p to 99p.

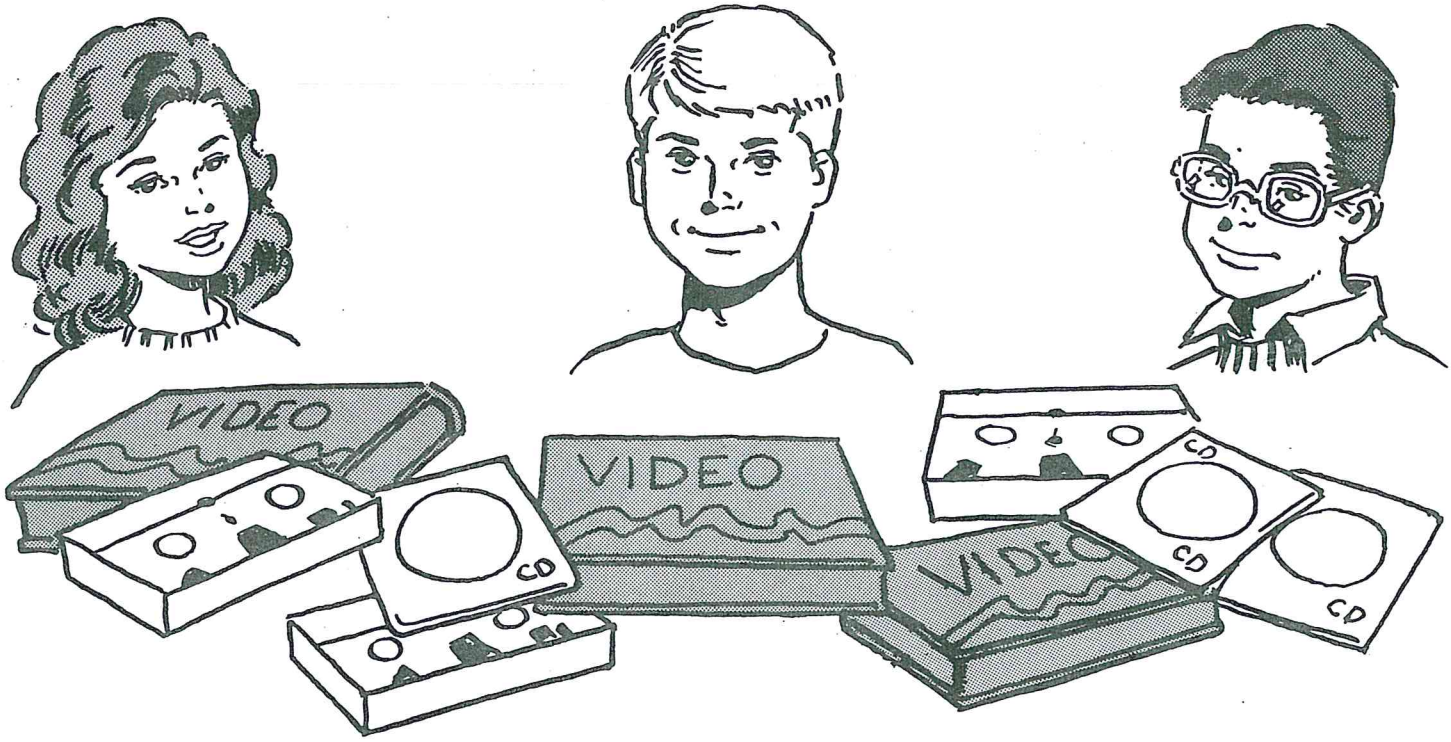
(a) What eight coins could she have?

(b) Find a different set of eight coins that she could use.



11 Puzzle prices

Problem solving activity



1 Janey pays £15 for a cassette and a video.
Fred pays £17 for a video and a CD.
Stan pays £16 for a cassette and a CD.
What is the price of each item?

2 Customers at the supermarket can use vouchers as well as cash to pay for goods. Janey and Fred each bought a set of glasses.

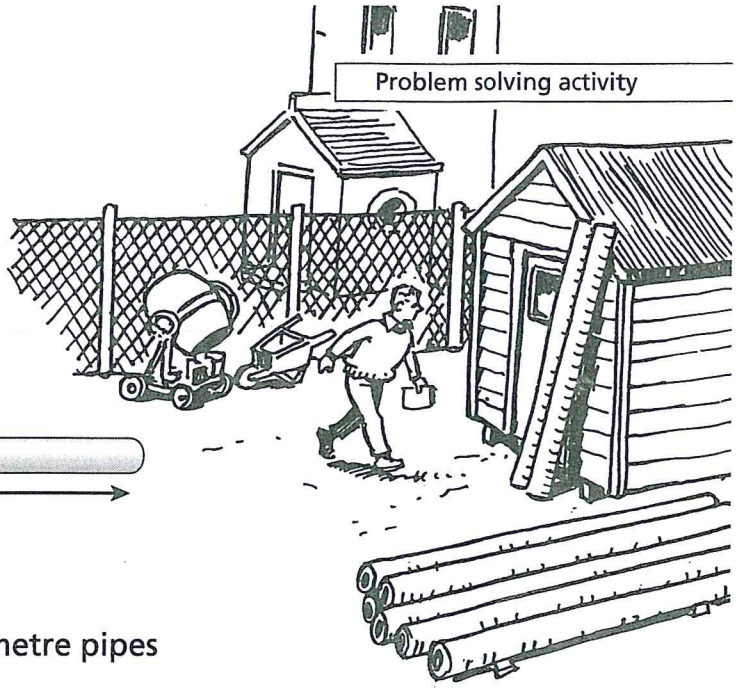
Janey paid with
12 vouchers and £5.

Fred paid with
10 vouchers and £6.

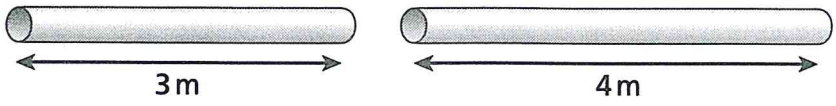
(a) Find the cash price of a set of glasses.
(b) Each shopper receives a voucher when they spend £5 in the supermarket. How much would Stan have to spend if he wanted enough vouchers to buy the set of glasses?

13 Peter's pipes

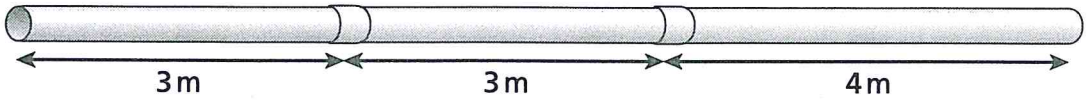
Problem solving activity

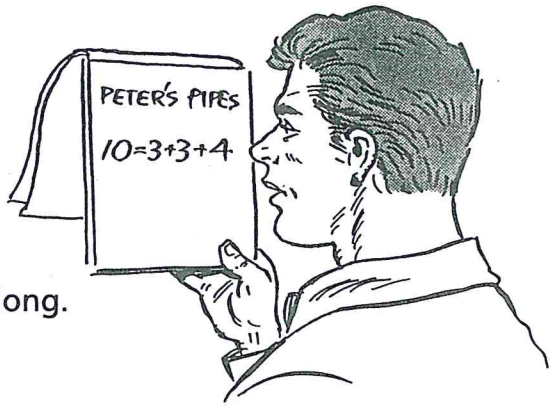


Peter has a supply of plastic pipes which are 3 metres long and 4 metres long.



Peter makes a 10-metre pipe by using **two** 3-metre pipes and **one** 4-metre pipe.

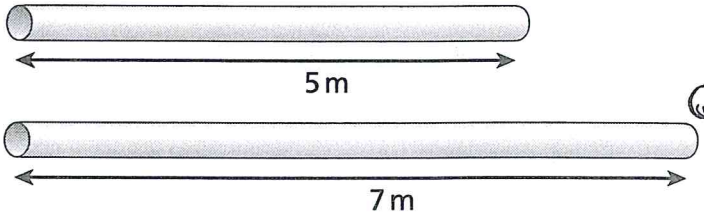




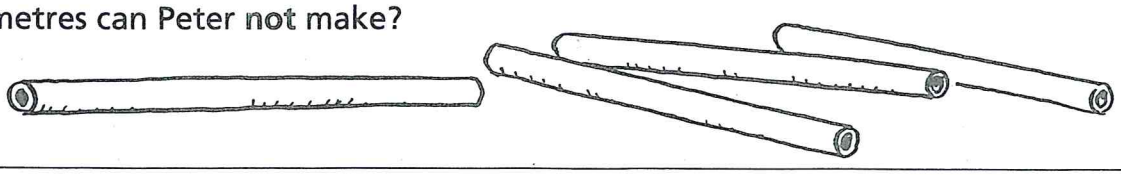
1 Show how Peter can make pipes which are
- 7 metres long
- 9 metres long
- 11 metres long.

2 In his van, Peter has **five** 3-metre pipes and **two** 4-metre pipes. Find all the different lengths of pipe he can make.

At the building site, Peter has a supply of concrete pipes which are 5 metres long and 7 metres long.



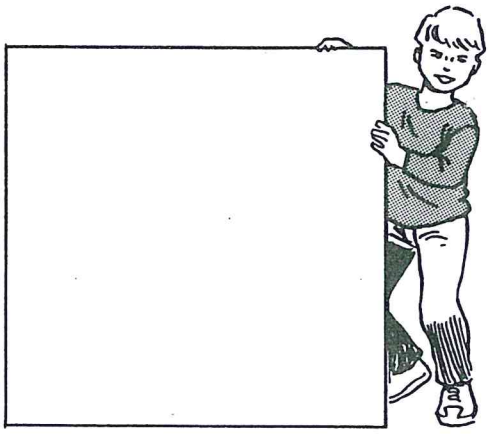
3 Which lengths between 20 metres and 30 metres can Peter **not** make?



14 Taking sides

Problem solving activity

1

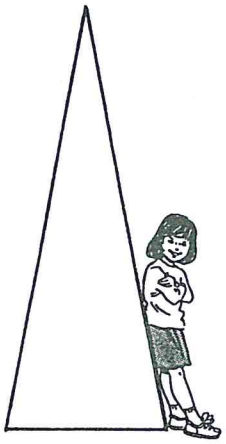


It's a square.

The perimeter is 5·68 m.

How long is each side?

2

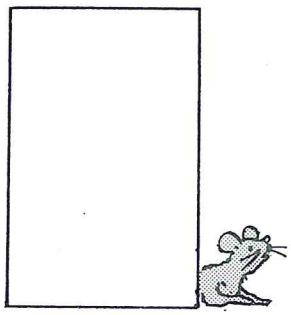


It's an isosceles triangle.

The perimeter is 8 m.
The short side is 1·2 m long.

How long is each of the other sides?

3



It's a rectangle.

The perimeter is 51 cm.
Each short side is half the length of each long side.

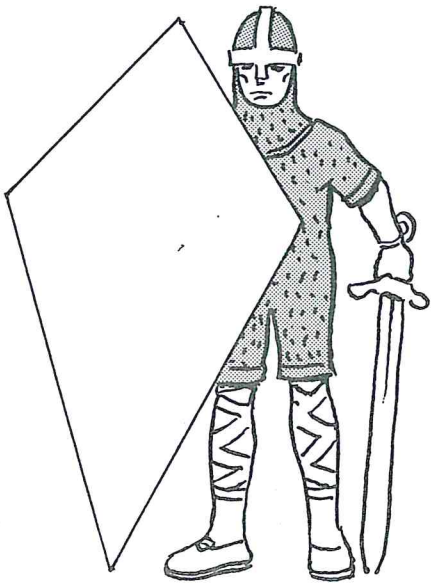
How long is each side?

4

It's a kite.

The perimeter is 6 m.
Each long side is 0·5 m longer than each short side.

How long is each side?



19 Time diary

Problem solving activity

1 Copy and complete John's diary for Tuesday morning.

Two activities each lasted 35 minutes.

Interval ended at 10.55

Gym lasted longer than art.

Maths lasted 10 minutes less than music.

Tuesday

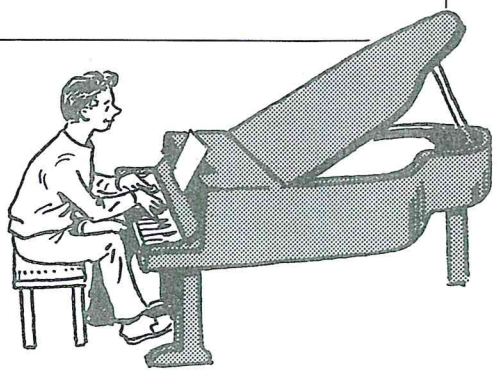
Art: from 9.15 to _____

Gym: from _____ to _____

Interval 15 minutes

Maths: from _____ to _____

Music: from _____ to 12.15



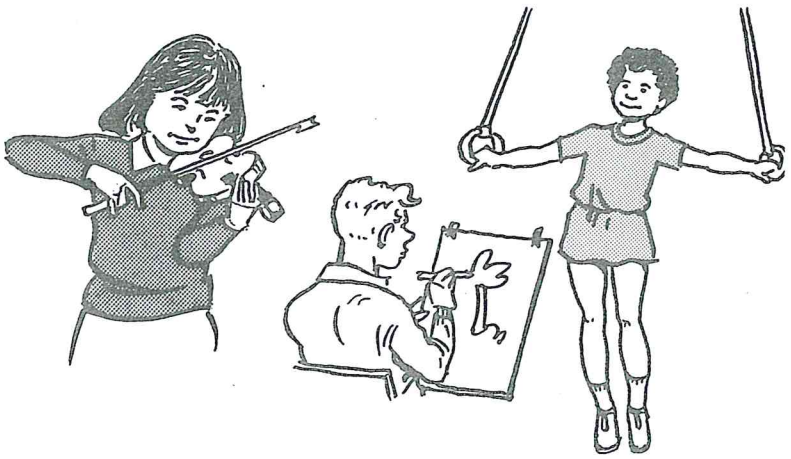
2

Teacher's diary

Week beginning _____

Mon	Tue	Wed	Thu	Fri
___	___	___	___	___
___	___	___	___	___

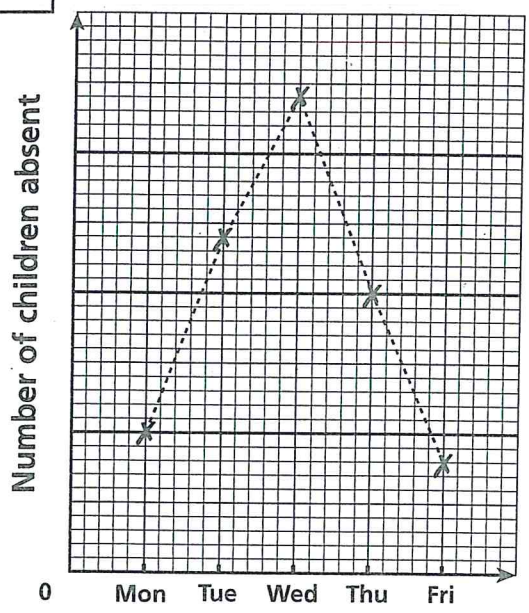
In the teacher's diary for a school week, some days have 8 activities and the other days have 7 activities. If there are 38 activities altogether, on how many days are there 7 activities?



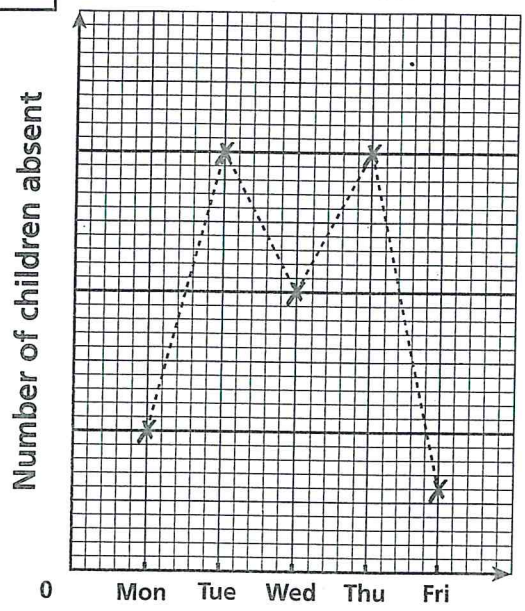
26 Absences

Problem solving activity

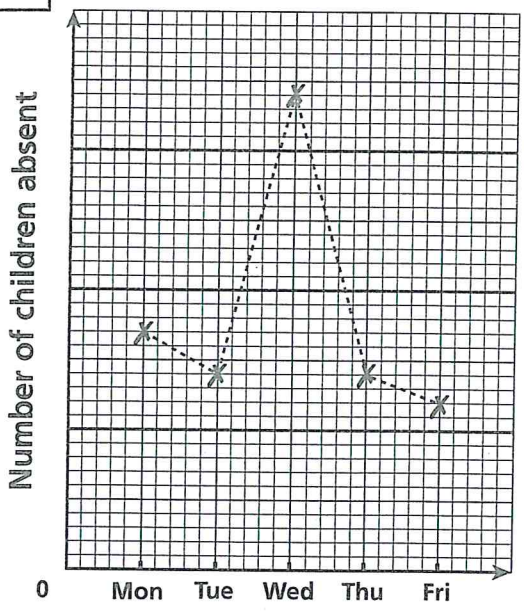
Graph A



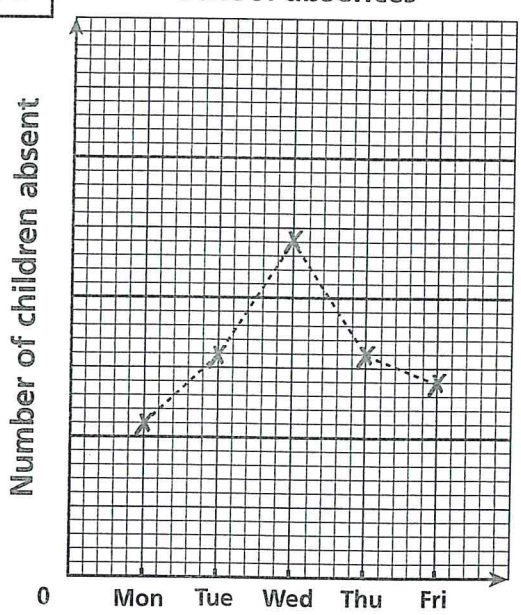
Graph B



Graph C



Graph D



1 Only one of the above graphs correctly represents the following information.
Which one?

- More children were absent on Wednesday than on Thursday.
- The same number were absent on Tuesday as on Thursday.
- Half as many were absent on Monday as on Wednesday.

2 The number absent on Wednesday was 68.
How many were absent on each of the other days?

31 Laying down the law

Problem solving activity

Lawyers and judges from three countries have been invited to discuss new pollution laws.

United Kingdom

judge

lawyer

lawyer

Brazil

judge

judge

lawyer

India

judge

lawyer

lawyer

Organize a round table for the talks so that

- no two from the same country sit together
- a judge sits between two lawyers.

Draw the table and show where each person could sit.