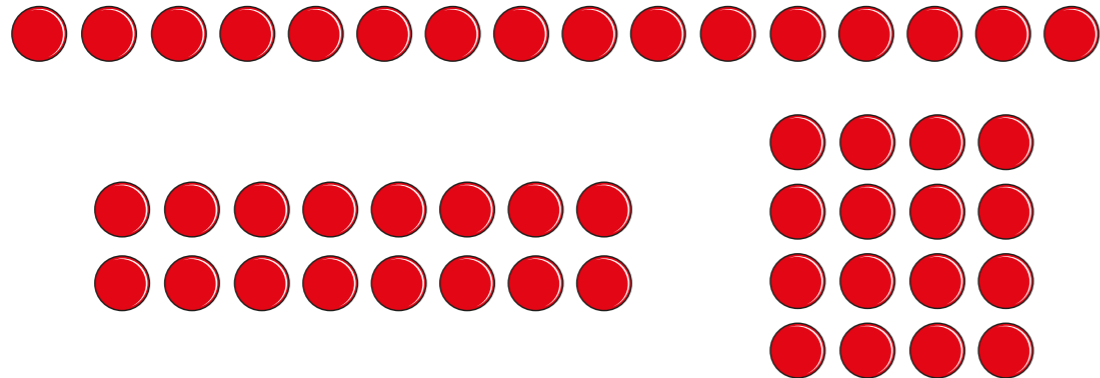


Square numbers

1 a) Use 16 counters to make these arrays.



b) What do you notice about the shape of one of the arrays?

It's a square.

c) Is 16 a square number? How do you know?

2 a) Is it possible to make a square array with 8 counters? No

b) Is it possible to make a square array with 9 counters? Yes

c) Which number is a square number? 9

How do you know?

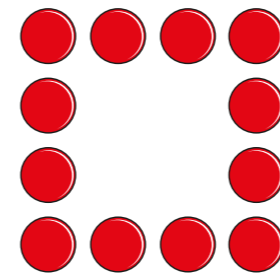
You can make a square array using

9 counters.

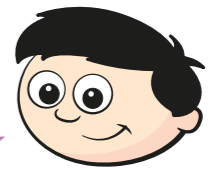
3 Which of these numbers are square numbers?
Circle your answers.

4 10 18 25

4 Dexter makes a square using 12 counters.



12 is a square number as I can make the counters into a square.



What mistake has Dexter made?

His square is incomplete.

5 Whitney is working out a calculation.

$$8 \times 8 = 16$$

What mistake has Whitney made?

She has done $8 + 8$

It should be 64

6 The arrays below show a sequence.

a) Complete the number sentences. Use the arrays to help you.

$1 \times 1 = \boxed{1}$ $2 \times 2 = \boxed{4}$ $3 \times \boxed{3} = \boxed{9}$ $\boxed{4} \times \boxed{4} = \boxed{16}$

b) What do these numbers have in common?

They're all square numbers.

c) Draw the next two numbers in the sequence and write a number sentence for each.

$5 \times 5 = 25$ $6 \times 6 = 36$

d) What would the next four numbers in the sequence be?

$\boxed{49}$, $\boxed{64}$, $\boxed{81}$, $\boxed{100}$

7 Complete the statements.

- a) $6^2 = \boxed{36}$ d) $0^2 = \boxed{0}$
 b) $12^2 = \boxed{144}$ e) $\boxed{10}^2 = 100$
 c) $\boxed{81} = 9^2$ f) $64 = \boxed{8}^2$

8 a) Write the numbers in the table.

	0	3	4	11	49
	Factor of 24		Not a factor of 24		
Square number		4		0	49
Prime number		3		11	

b) Write a different number in each part of the table.

9 Dani is thinking of a square number with 2 digits. The digits add together to make another square number. What could the number be?

$\boxed{36}$

10 Huan is celebrating his birthday. His age is a square number. Last year he was a multiple of 12. Next year he will be a multiple of 10. How old is Huan?

$\boxed{49}$

