Square numbers

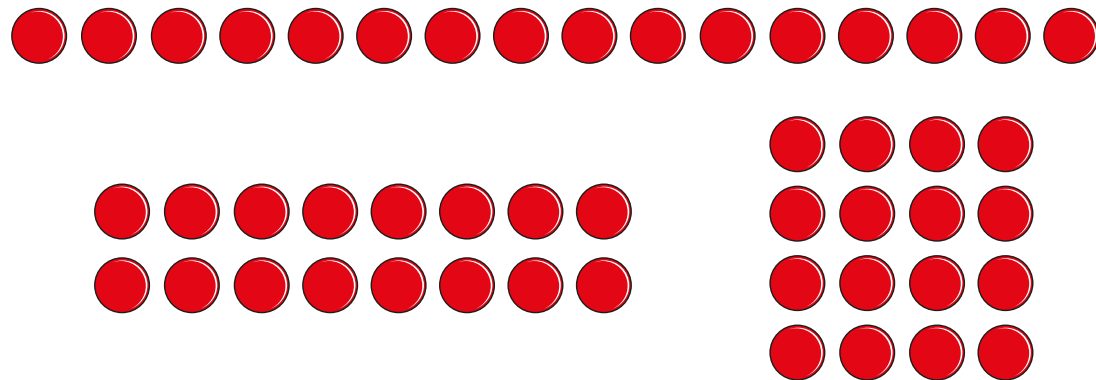**1** **a)** Use 16 counters to make these arrays.

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

_____

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

2 **a)** Is it possible to make a square array with 8 counters? _____

b) Is it possible to make a square array with 9 counters? _____
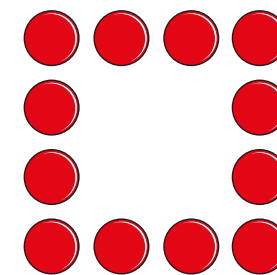
c) Which number is a square number?

How do you know?
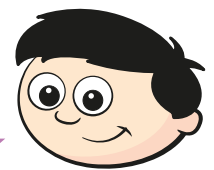
_____

_____

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?

_____

_____

5 Whitney is working out a calculation.
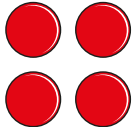
8 × 8 = 16

What mistake has Whitney made?

_____

_____

6 The arrays below show a sequence.
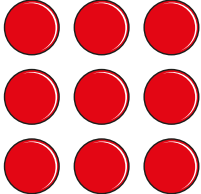
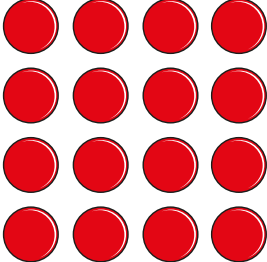**a)** Complete the number sentences. Use the arrays to help you.

$1 \times 1 = \boxed{}$ $2 \times 2 = \boxed{}$ $3 \times \boxed{} = \boxed{}$ $\boxed{} \times \boxed{} = \boxed{}$

b) What do these numbers have in common?

_____

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

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

$\boxed{}$, $\boxed{}$, $\boxed{}$, $\boxed{}$

7 Complete the statements.

a) $6^2 = \boxed{}$

d) $0^2 = \boxed{}$

b) $12^2 = \boxed{}$

e) $\boxed{}^2 = 100$

c) $\boxed{} = 9^2$

f) $64 = \boxed{}^2$

8 **a)** Write the numbers in the table.

0   **3**   **4**   **11**   **49**

	Factor of 24	Not a factor of 24
Square number		
Prime number		

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?

$\boxed{}$

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?

$\boxed{}$