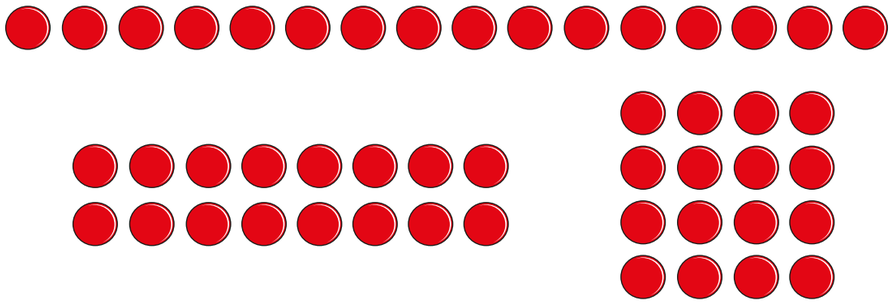
Square numbers

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?

_____

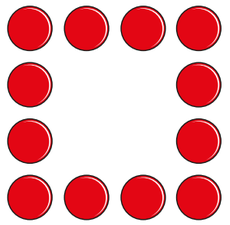
_____

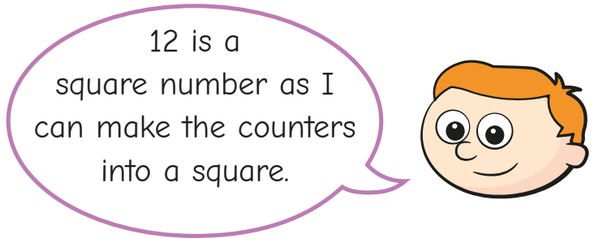
3 Which of these numbers are square numbers?

Circle your answers.

4 **10** **18** **25**

4 Ron makes a square using 12 counters.





What mistake has Ron made?

_____

_____

5 Whitney is working out a calculation.

$8 \times 8 = 16$

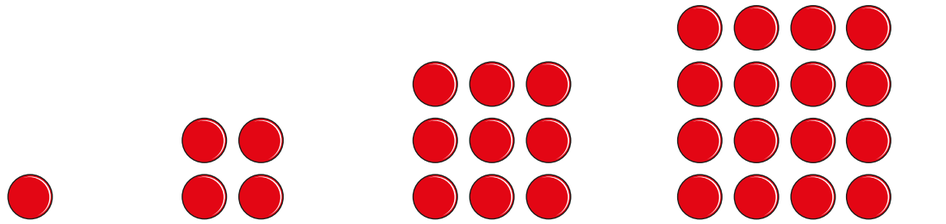
What mistake has Whitney made?

_____

_____

6 The arrays show a sequence.

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



1 × 1 = ☐ 2 × 2 = ☐ 3 × ☐ = ☐ ☐ × ☐ = ☐

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?

☐, ☐, ☐, ☐

7 Complete the statements.

a) 6^2 = ☐

b) 12^2 = ☐

c) ☐ = 9^2

d) 0^2 = ☐

e) ☐^{2} = 100

f) 64 = ☐^{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 two digits.

The digits add together to make another square number.

What could the number be?

☐

10 Dr Trent is celebrating his birthday.

His age is a square number.

Last year, his age was a multiple of 12

Next year, his age will be a multiple of 10

How old is Dr Trent?

☐