

Year 7



Baldivis
Secondary College

Investigation -2018

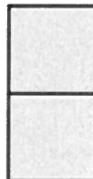
Number and Algebra

Name: Solutions

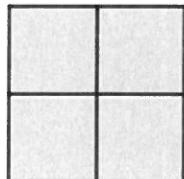
Teacher: _____ Due Date: _____

Section One – Take Home Section

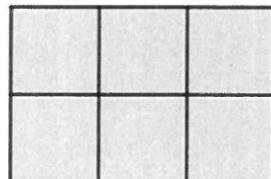
Question 1



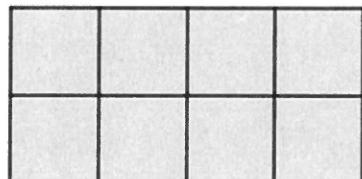
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2



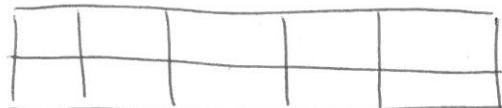
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4

+ 2 + 2

- a) Draw the shape number 5 for the pattern above.



- b) Complete the table below for the patterns above.

Shape number (n)	1	2	3	4	5	6
Area of the shape (A)	2	4	6	8	10	12

- c) Describe any pattern that you can see in the table.

The area increases by 2 each time.

More answers possible.

- d) What is the area for shape number 10?

20

- e) Write a sentence describing the relationship between the shape number and the area?

The area is double the shape number.

- f) Let n be the shape number and A be the area of shape. Write a rule using symbols and letters between the shape number and area.

$$A = 2 \times n \quad A = 2n$$

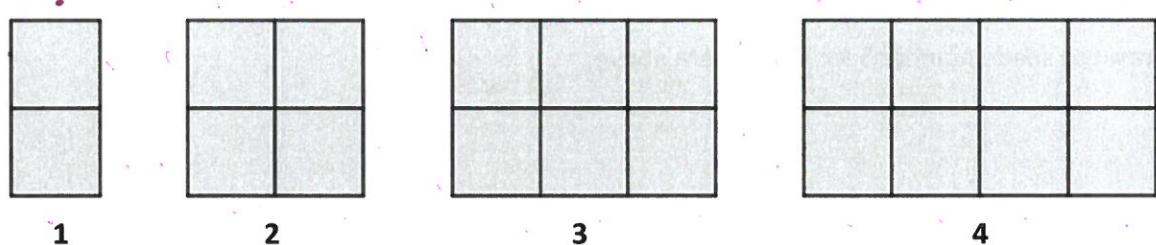
- g) Using your rule, what is the area of shape number 25. (Show your working)

$$A = 2 \times 25 \quad A = 50$$

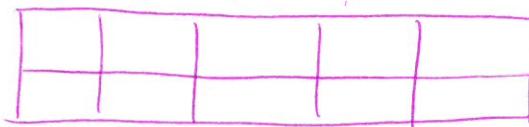
- h) If the area of a shape is 46, what is the shape number? (Show your working)

$$46 = n \times 2 \quad 46 \div 2 \\ = 23$$

Question 2



- a) Draw the shape number 5 for the pattern above.



- b) Complete the table below for the patterns above.

Shape number (n)	1	2	3	4	5	6
Perimeter of the shape (P)	4	6	8	10	12	14

- c) Describe any pattern that you can see in the table.

The perimeter increases by 2 each time.
More answers possible.

- d) What is the perimeter for shape number 10?

24

- e) Write a sentence describing the relationship between the shape number and the perimeter?

The shape number is doubled then
4 is added.

- f) Let n be the shape number and P be the perimeter of the shape. Write a rule using symbols and letters between the shape number and perimeter.

$$P = 2 \times n + 4 \quad 2n + 4 = P$$

- g) Using your rule, what is the perimeter of shape number 25. (Show your working)

$$P = 2 \times 25 + 4 \quad P = 54$$

- h) If the perimeter of a shape is 110, what is the shape number? (Show your working)

$$110 = 2 \times n + 4$$

$$110 - 4 = 106 \div 2$$

$$= 53$$

