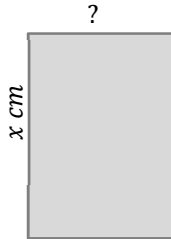


Algebraic expressions use both letter and numbers to express a quantity. If a given quantity is  $x$  and another quantity is 5 more, then the expression becomes  $x+5$ . Using your knowledge of whole numbers and mathematical operations, the concept is the same. The only difference is that you will not get a number as your answer. Six less than  $y$  becomes  $y - 6$ . Three times a number  $p$  becomes  $3p$ .

1. Write algebraic expressions for the following statements:

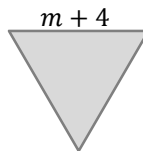
- a) \_\_\_\_\_ 5 more than  $d$
- b) \_\_\_\_\_ 3 less than  $k$
- c) \_\_\_\_\_ twice as much as  $w$
- d) \_\_\_\_\_ 8 divided by  $e$
- e) \_\_\_\_\_ 1 more than twice a number

2. A rectangle has a length of  $x$  cm. The width is 3cm less than the length. Write an algebraic expression, in terms of  $x$ , for:



- a) \_\_\_\_\_ the width
- b) \_\_\_\_\_ the perimeter of the rectangle
- c) \_\_\_\_\_ the area of the rectangle

3. One side of an equilateral triangle has a length of  $m + 4$  cm. Write an expression, in terms of  $r$ , for:



- a) \_\_\_\_\_ the perimeter

4. One apple costs  $a$  cents and one banana costs  $\frac{b}{2}$  cents. Find the total cost of:

- a) \_\_\_\_\_ eight bananas
- b) \_\_\_\_\_ seven apples
- c) \_\_\_\_\_ one apple and one banana
- e) \_\_\_\_\_ three apples and two bananas



5. Sam is  $x$  years old. Carter is 3 years younger than Sam. Amy is twice as old as Sam. Write an expression for:

- a) \_\_\_\_\_ Carter's age
- b) \_\_\_\_\_ Amy's age.
- c) \_\_\_\_\_ the sum of the three ages
- d) Uncle George is 42 years old and Amy is one third his age. Calculate the ages of:
  - i) \_\_\_\_\_ Sam
  - ii) \_\_\_\_\_ Carter
  - iii) \_\_\_\_\_ Amy

6. The left side of a square measures  $3y - 12$  cm. Write an expression, in terms of  $y$ , for the perimeter of the square. \_\_\_\_\_



7. Using  $x = \text{even number}$  and  $y = \text{odd number}$ , re-write the table below, which shows properties of whole numbers, to form algebraic expressions.

|                    |                    |
|--------------------|--------------------|
| even + even = even | even x even = even |
| odd + odd = even   | odd x odd = odd    |
| even + odd = odd   | even x odd = even  |
| odd + even = odd   | odd x even = even  |

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8. In one week of virtual learning, Howie spent  $d$  minutes on the internet. Soheil spent 105 minutes less than Howie. Taylor spent three times as much as Howie.

Write down an expression for how long:

- a) \_\_\_\_\_ Soheil spent online.
- b) \_\_\_\_\_ Taylor spent online.
- c) \_\_\_\_\_ all three spent online

If Taylor spent 1,542 minutes online, how many minutes did:

- d) \_\_\_\_\_ Soheil spend online?

9. Rudy has  $y$  marbles. Kendre has 45 marbles. Gareth has 24 marbles.

- a) \_\_\_\_\_ Write down an expression for the total number of marbles they have.

Altogether they have 103 marbles.

- b) \_\_\_\_\_ How many marbles does Rudy have.