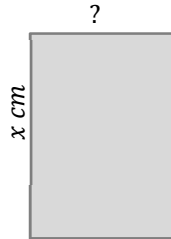Algebraic expressions use both letter and numbers to express a quantity. If a given quantity is x and another quantity is 5 more, then the expression becomes x+5. Using your knowledge of whole numbers and mathematical operations, the concept is the same. The only difference is that you will not get a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

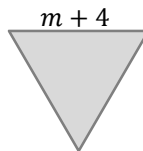1. Write algebraic expressions for the following statements:

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 $x = even\ number$ and $y = odd\ number$, 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

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.