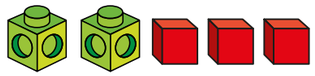
Forming expressions

1 Tommy uses multilink cubes to represent an unknown number and base ten ones to represent 1

 = x  = 1

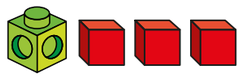
Write algebraic expressions to describe the sets of cubes.

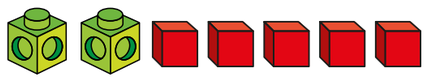
The first one has been done for you.

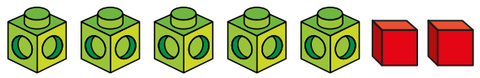
a)  $2x + 3$

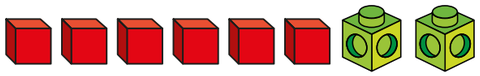
b)  $3x + 5$

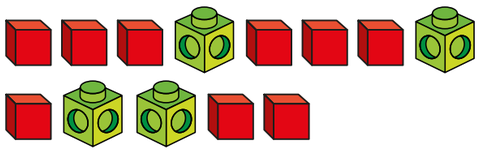
c)  $3x$

d)  $x + 3$

e)  $2x + 5$

f)  $5x + 2$

g)  $2x + 6$

h)  $4x + 9$

2 Use Tommy's method to represent these expressions.

a) $x + 2$

b) $2x$

c) $3x + 1$

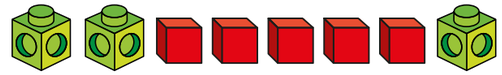
d) $x + 6$

Compare answers with a partner.

3 Use cubes to help you simplify the following expressions.

The first one has been done for you.

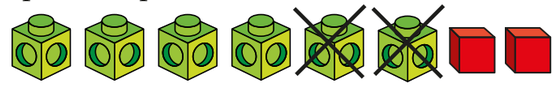
a) $2y + 5 + y$

 $3y + 5$

b) $3a + 2 + a + a$

 $5a + 2$

c) $6p + 2 - 2p$

 $4p + 2$

d) $m + 4 + 3m - 3$

$4m + 1$

4 Complete the function machines.

a)

input		output
2	+4	6
7		11
y		$y+4$

b)

input		output
2	×2	4
5		10
y		$2y$

c)

input		output
6	→	3
12	→	9
y	→	$y-3$

d)

input		output
30	→	3
50	→	5
y	→	$\frac{y}{10}$

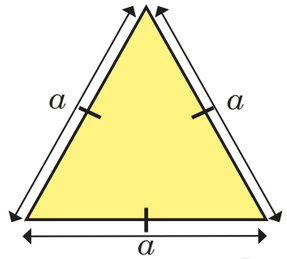
5 Match each statement to the equivalent algebraic expression.

Write the missing statements.

5 more than y	$2y$
y less than 5	$y - 5$
y multiplied by 5	$5 - y$
y divided by 5	$y + 5$
double y	$5y$
5 less than y	y^2
y multiplied by y	$\frac{y}{5}$

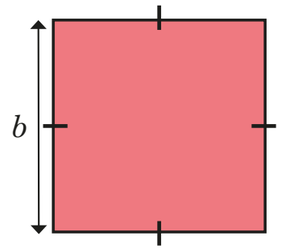
6 Write an algebraic expression to represent the perimeter of each shape.

a)



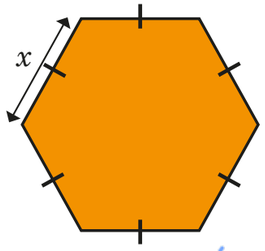
$3a$

b)



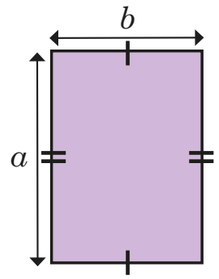
$4b$

c)



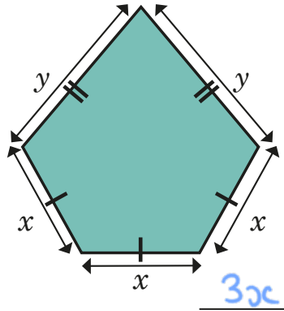
$6x$

d)



$2a + 2b$

e)



$3x + 2y$

7 Complete the bar models.

a)

$2a$	
a	a

b)

$2b + 10$		
b	b	10

c)

c			
$\frac{c}{4}$	$\frac{c}{4}$	$\frac{c}{4}$	$\frac{c}{4}$

d)

$d + 5$		
$\frac{d}{2}$	$\frac{d}{2}$	5