

EXPRESSING FORMULAS SYMBOLICALLY.

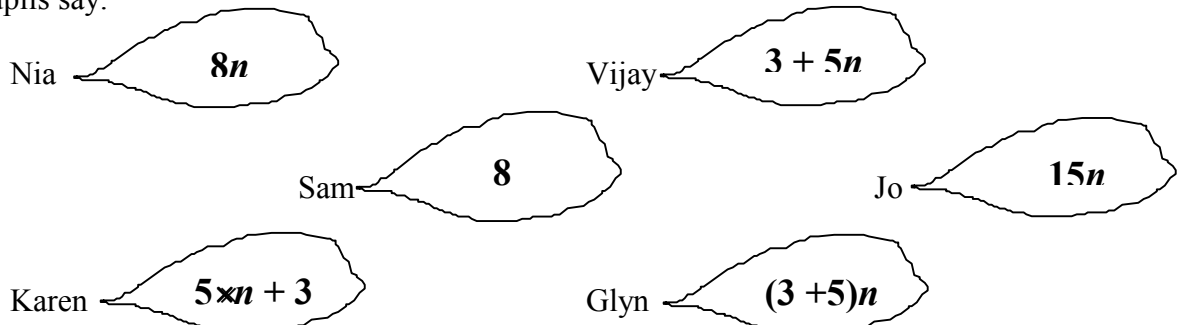
- 1) A bag contains x sweets.
How many sweets are there in 5 bags ?
- 2) A box contains x calculators.
How many calculators are there in 10 boxes ?
- 3) A box contains y tee-shirts.
How many tee-shirts are there in 8 boxes ?
- 4) Bags of sweets each contain x sweets. If 2 sweets are **removed** from the bag,
a) how many sweets are there now in a single bag ?
b) how many sweets are there now in 5 such bags ?
- 5) Bags of sweets each contain x sweets.
If 3 sweets are **added** to the bag,
a) how many sweets are there now in a single bag ?
b) how many sweets are there now in 5 such bags ?

- 6) A teacher has 5 bags of marbles and 3 extra marbles. Each bag has n marbles inside.



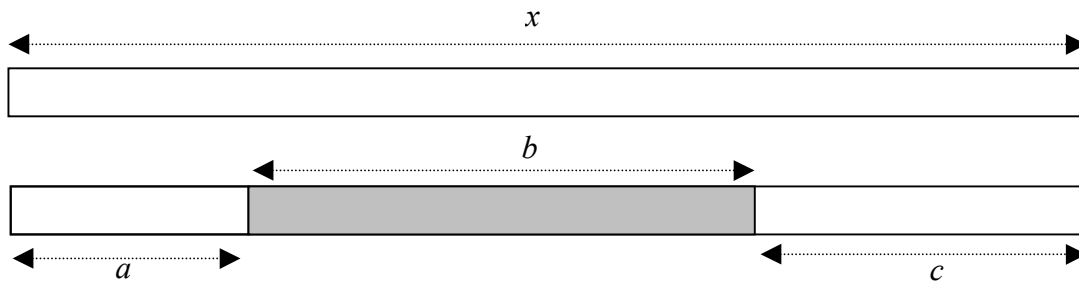
She asks: 'How many marbles are there altogether?'

The pupils say:



- a) Name one pupil who is right.
- b) Name another pupil who is right.
- c) If there are 38 marbles altogether, find the value of n .

- 7) The following diagram shows bars of length x , a , b and c .



For each of the following statements, indicate whether they are true or false.

- i) $x = a + b + c$. ii) $x - a = b + c$. iii) $c = x - a + b$. iv) $b = x + a - c$.
v) $a = x - (b + c)$. vi) $x - a = b - c$. vii) $a + b = c$.
- 8) a) Short-sleeved shirts cost x pounds. What is the cost of 6 of these shirts?
b) Long-sleeved shirts cost y pounds. What is the cost of 4 of these shirts?
c) Write down the total cost of the 10 shirts.
d) The short-sleeved shirts in (a) are sold for £2 each less than the $\pounds x$, if at least 20 are bought. What is the cost of 20 short-sleeved shirts at this new price?
- 9) a) Marcus worked for a firm that pays him $\pounds x$ per hour for work done during Monday to Friday. How much was he paid for 30 hours of work during Monday to Friday?
b) On Saturday and Sunday he gets paid at twice the Monday to Friday rate. How much was he paid for working a total of 8 hours during Saturday and Sunday?
c) How much was Marcus paid altogether, giving your answer in its simplest form.
d) Christopher was paid £2 per hour more than Marcus. How much was Christopher paid for 6 hours worked on a Monday?
- 10) a) A team gets x points for each game it draws. Find, in terms of x , how many points the team gets for drawing 5 games.
b) For every win the team gets three times as many points it gets for a draw. Find, in terms of x , how many points the team gets for 7 wins.
c) Find, in terms of x , the total points the team gets for 5 draws and 7 wins. Simplify your answer as far as possible.
- 11) a) Concert tickets, for a part of a theatre known as the stalls, cost $\pounds x$ each. What, in terms of x , is the cost of 6 tickets for the stalls?
b) A ticket for another part of the theatre known as the circle costs £3 less than a ticket for the stalls. What, in terms of x , is the cost of one ticket for the circle?
c) What, in terms of x , is the cost of 5 tickets for the circle?
d) Find, in terms of x , the total cost of 6 tickets for the stalls and 5 tickets for the circle, simplifying your answer as far as possible.

ANSWERS.

1) $5x$.

2) $10x$.

3) $8y$.

4) a) $x - 2$, b) $5(x - 2)$ or $5x - 10$.

5) a) $x + 3$, b) $5(x + 3)$ or $5x + 15$.

6) a) and b) Vijay and Karen, c) $n = 7$.

7) i) True, ii) true, iii) false, iv) false, v) true, vi) false, vii) false.

8) a) $6x$, b) $4y$, c) $6x + 4y$, d) $20(x - 2)$ or $20x - 40$.

9) a) $30x$, b) $16x$, c) $46x$, d) $6(x + 2)$ or $6x + 12$.

10) a) $5x$, b) $21x$, c) $26x$.

11) a) $6x$, b) $x - 3$, c) $5(x - 3)$ or $5x - 15$, d) $11x - 15$.