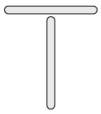
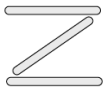
Answer all the questions with proper steps

Q1. Find the rule which gives the number of matchsticks required to make the following matchsticks patterns. Use a variable to write the rule. [7 x 0.5 = 3.5]

(a) A pattern of letter T as



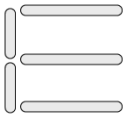
(b) A pattern of letter Z as



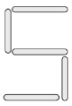
(c) A pattern of letter U as

(d) A pattern of letter Vas

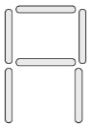
(e) A pattern of letter E as



(f) A pattern of letter S



(g) A pattern of letter A as



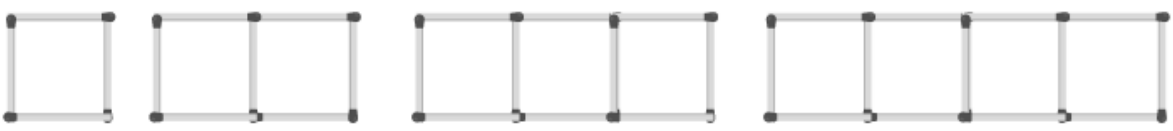
Q2. If there are 50 mangoes in a box, how will you write the total number of mangoes in terms of the number of boxes? (Use b for the number of boxes)

Q3. Radha is drawing a dot Rangoli (a beautiful pattern of lines joining dots) with chalk powder. She has 9 dots in a row. How many dots will her Rangoli have for r rows? How many dots are there if there are 8 rows? If there are 10 rows?

Q4. Leela is Radha's younger sister. Leela is 4 years younger than Radha. Can you write Leela's age in terms of Radha's age? Take Radha's age to be x years.

Q5. Mother has made laddus. She gives some laddus to guests and family members; still 5 laddus remain. If the number of laddus mother gave away is l, how many laddus did she make?

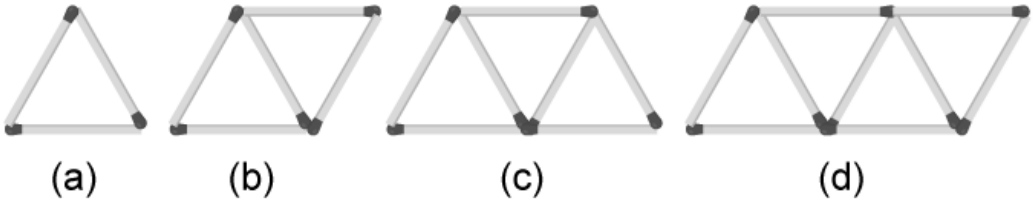
Q6 (a) Look at the following matchstick pattern of squares (Fig 11.6). The squares are not separate. Two neighbouring squares have a common matchstick. Observe the patterns and find the rule that gives the number of matchsticks



(a) (b) (c) (d)

in terms of the number of squares. (Hint: If you remove vertical stick at the end, you will get a pattern of Cs)

(b) Fig 11.7 gives a matchstick pattern of triangles. As in Exercise 11 (a) above, find the general rule that gives the number of matchsticks in terms of the number of triangles.



Q7. The side of an equilateral triangle is shown by l. Express the perimeter of the equilateral triangle using l.

Q8. The side of the regular hexagon (Fig 11.10) is denoted by l. Express the perimeter of the hexagon using l.

Q9. Give expressions for the following cases.

(a) 7 added to p

(b) 7 subtracted from p

(c) p multiplied by 7

(d) p divided by 7

Q10. Give expressions in the following cases.

(a) y is multiplied by -8

(b) y is multiplied by -8 and then 5 is added to the result

(c) y is multiplied by 5 and the result is subtracted from 16

(d) y is multiplied by -5 and the result is added to 16.

Q11. Answer the following:

(a) Take Sarita's present age to be y years

(i) What will be her age 5 years from now?

(ii) What was her age 3 years back?

(iii) Sarita's grandfather is 6 times her age. What is the age of her grandfather?

(iv) Grandmother is two year younger than grandfather. What is grandmother's age?

(v) Sarita's father's age is 5 years more than 3 times Sarita's age. What is her father's age?

Q12. Change the following statements using expressions into statements in ordinary language.

(For example, Given Salim scores r runs in a cricket match, Nalin scores (r + 15) runs. In ordinary language – Nalin scores 15 runs more than Salim.)

(a) A notebook costs ₹ p. A book costs ₹ 3p

(b) Tony put q marbles on the table. He has 8 q marbles in his box.

(c) Our class has n students. The school has 20 n students.

Q13. Pick out the solution from the values given in the bracket next to each equation.

Show that the other values do not satisfy the equation.

(a) 5m = 60 (10, 5, 12, 15)

(b) n + 12 (12, 8, 20, 0)

(c) p – 5 = 5 (0, 10, 5 – 5)

Q14.

(a) Complete the table and by inspection of the table find the solution to the equation m + 10 = 16.

m	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	—	—	—
m + 10	—	—	—	—	—	—	—	—	—	—	—	—	—

(b) Complete the table and by inspection of the table, find the solution to the equation

5t = 35

t	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	—	—	—	—	—
5t	—	—	—	—	—	—	—	—	—	—	—	—	—	—