



NCERT SOLUTIONS FOR CLASS 6 MATHS ALGEBRA
EXERCISE 11.1

Question 1. Find the rule, which gives the number of matchsticks required to make the following matchsticks patterns. Use a variable to write the rule.

(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 V as



(e) A pattern of letter E as



(f) A pattern of letter S as



(g) A pattern of letter A as



Answer:

(a) Pattern of letter



$$= 2n$$

(as two matchstick used in each letter)

(b) Pattern of letter



$$= 3n$$

(as three matchstick used in each letter)

(c) Pattern of letter



$$= 3n$$

(as three matchstick used in each letter)

(d) Pattern of letter



$$= 2n$$

(as two matchstick used in each letter)

(e) Pattern of letter



$$= 5n$$

(as five matchstick used in each letter)

(f) Pattern of letter



$$= 5n$$

(as five matchstick used in each letter)

(g) Pattern of letter



$$= 6n$$

(as six matchstick used in each letter)

Question 2. We already know the rule for the pattern of letter L, C and F. Some of the letters from Q.1 (given above) give us the same rule as that given by L. Which are these? Why does this happen?

Answer: The letter 'T' and 'V' that has pattern $2n$, since 2 matchsticks are used in all these letters.

Question 3. Cadets are marching in a parade. There are 5 cadets in a row. What is the rule, which gives the number of cadets, given the number of rows? (Use n for the number of rows)

Answer: Number of rows = n

Cadets in each row = 5

Therefore, total number of cadets = $5n$

Question 4. 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)

Answer: Number of boxes = b

Number of mangoes in each box = 50

Therefore, total number of mangoes = $50b$

Question 5. The teacher distributes 5 pencils per student. Can you tell how many pencils are needed, given the number of students? (Use s for the number of students)

Answer:

Number of students = s

Number of pencils to each student = 5

Therefore, total number of pencils needed are = $5s$

Question 6. A bird flies 1 kilometer in one minute. Can you express the distance covered by the bird in terms of its flying time in minutes? (Use t for flying time in minutes)

Answer: Time taken by bird = t minutes

Speed of bird = 1 km per minute

Therefore, Distance covered by bird = speed \times time = $1 \times t = t$ km

Question 7. Radha is drawing a dot Rangoli (a beautiful pattern of lines joining dots with chalk powder as in figure). She has 8 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?



Answer: Number of dots in each row = 8 dots

Number of rows = r

Therefore, number of dots = $8r$

Where there are 8 rows, then number of dots = $8 \times 8 = 64$ dots

When there are 10 rows, then number of dots = $8 \times 10 = 80$ dots

Question 8. 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.

Answer: Radha's age = x years

Therefore, Leela's age = $(x-4)$ years

Question 9. 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?

Answer: Number of laddus gave away = l

Number of laddus remaining = 5

Total number of laddus = $(l+5)$

Question 10. Oranges are to be transferred from larger boxes into smaller boxes. When a large box is emptied, the oranges from it fill two smaller boxes and still 10 oranges remain outside. If the number of oranges in a small box are taken to be x , what is the number of oranges in the larger box?

Answer:

Number of oranges in one box = x

Number of boxes = 2

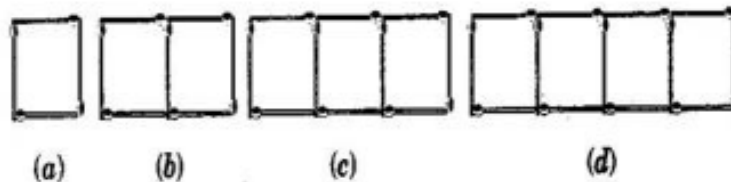
Therefore, total number of oranges in boxes = $2x$

Remaining oranges = 10

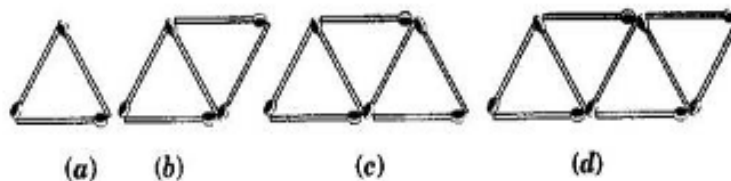
Thus, number of oranges = $2x + 10$

Question 11.

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



(b) Figs. Below 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.



Answer:



4 matchsticks



7 matchsticks



10 matchsticks



13 matchsticks

If we remove 1 from each then they makes table of 3, i.e., 3, 6, 9, 12,

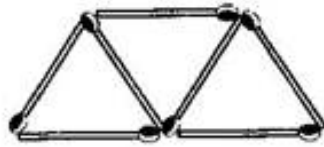
So the required equation = $3x+1$, where x is number of squares.



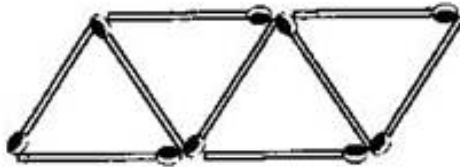
3 matchsticks



3 matchsticks



5 matchsticks



9 matchsticks

If we remove 1 from each then they makes table of 2, i.e., 2, 4, 6, 8,

So the required equation = $2x+1$, where x is number of triangles.

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