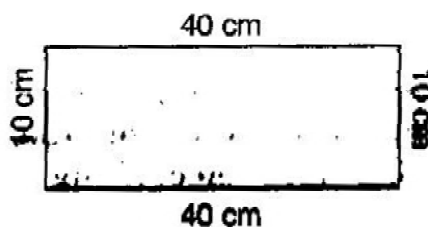1. Find the perimeter of each of the following figures:

2. The lid of a rectangular box of sides 40 cm by 10 cm is sealed all round with tape. What is the length of the tape required?

3. A table-top measures 2 m 25 cm by 1 m 50 cm. What is the perimeter of the table-top?

4. What is the length of the wooden strip required to frame a photograph of length and breadth 32 cm and 21 cm respectively?
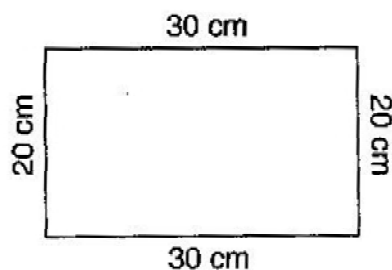
5. A rectangular piece of land measures 0.7 km by 0.5 km. Each side is to be fenced with 4 rows of wires. What is the length of the wire needed?

6. Find the perimeter of each of the following shapes:
   (a) A triangle of sides 3 cm, 4 cm and 5 cm.
   (b) An equilateral triangle of side 9 cm.
   (c) An isosceles triangle with equal sides 8 cm each and third side 6 cm.

7. Find the perimeter of a triangle with sides measuring 10 cm, 14 cm and 15 cm.
8. Find the perimeter of a regular hexagon with each side measuring 8 cm.
9. Find the side of the square whose perimeter is 20 m.
10. The perimeter of a regular pentagon is 100 cm. How long is its each side?
11. A piece of string is 30 cm long. What will be the length of each side if the string is used to form:
    (a) a square   (b) an equilateral triangle   (c) a regular hexagon?

12. Two sides of a triangle are 12 cm and 14 cm. The perimeter of the triangle is 36 cm. What is the third side?
13. Find the cost of fencing a square park of side 250 m at the rate of ₹ 20 per meter.
14. Find the cost of fencing a rectangular park of length 175 m and breadth 125 m at the rate of ₹ 12 per meter.
15. Sweety runs around a square park of side 75 m. Bulbul runs around a rectangular park with length of 60 m and breadth 45 m. Who covers less distance?

16. What is the perimeter of each of the following figures? What do you infer from the answer?
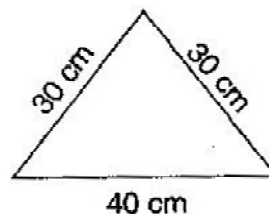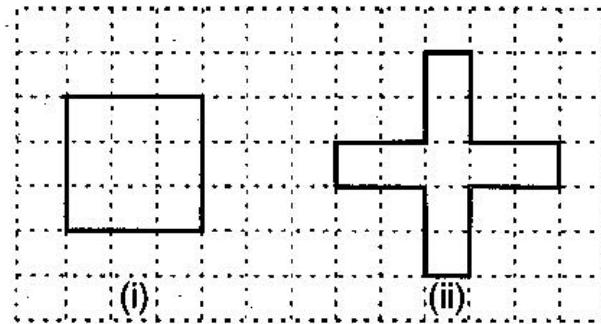

25 cm

25 cm   25 cm

25 cm

(a)

40 cm

10 cm   10 cm

40 cm

(b)

30 cm

20 cm   20 cm

30 cm

(c)

30 cm   30 cm

40 cm
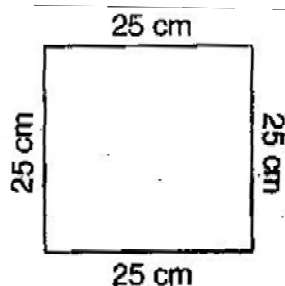
(d)

17. Avneet buys 9 square paving slabs, each with a side $\frac{1}{2}$ m. He lays them in the form of a square


(i)   (ii)

(a) What is the perimeter of his arrangement?

(b) Shari does not like his arrangement. She gets him to lay them out like a cross. What is the perimeter of her arrangement?

(c) Which has greater perimeter?

(d) Avneet wonders, if there is a way of getting an even greater perimeter. Can you find a way of doing this? (The paving slabs must meet along complete edges, i.e., they cannot be broken.)

1. (a) Perimeter = Sum of all the sides
    = 4 cm + 2 cm + 1 cm + 5 cm = 12 cm
    (b) Perimeter = Sum of all the sides
    = 23 cm + 35 cm + 40 cm + 35 cm = 133 cm
    (c) Perimeter = Sum of all the sides
    = 15 cm + 15 cm + 15 cm + 15 cm = 60 cm
    (d) Perimeter = Sum of all the sides
    = 4 cm + 4 cm + 4 cm + 4 cm + 4 cm = 20 cm
    (e) Perimeter = Sum of all the sides
    1 cm + 4 cm + 0.5 cm + 2.5 cm + 2.5 cm + 0.5 cm + 4 cm = 15 cm
    (f) Perimeter = Sum of all the sides
    = 4 cm + 1 cm + 3 cm + 2 cm + 3 cm + 4 cm + 1 cm + 3 cm + 2 cm + 3 cm + 4 cm
    1 cm + 3 cm + 2 cm + 3 cm + 4 cm + 1 cm + 3 cm + 2 cm + 3 cm
    = 52 cm

2. Total length of tape required = Perimeter of rectangle
    = 2 (length + breadth)
    = 2 (40 + 10)
    = 2 x 50
    = 100 cm = 1 m
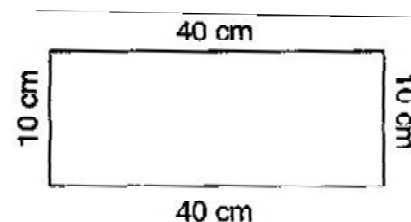
    Thus, the total length of tape required is 100 cm or 1 m.

3. Length of table top = 2 m 25 cm = 2.25 m
    Breadth of table top = 1 m 50 cm = 1.50 m
    Perimeter of table top = 2 x (length + breadth)
    = 2 x (2.25 + 1.50)
    = 2 x 3.75 = 7.50 m
    Thus, perimeter of table top is 7.5 m.

4. Length of wooden strip = Perimeter of photograph
    Perimeter of photograph = 2 x (length + breadth)
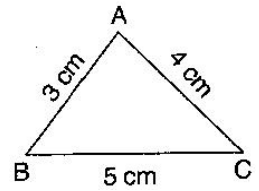   = 2 (32 + 21)
    = 2 x 53 cm = 106 cm
    Thus, the length of the wooden strip required is equal to 106 cm.

5. Since the 4 rows of wires are needed. Therefore the total length of wires is equal to 4 times the perimeter of rectangle.
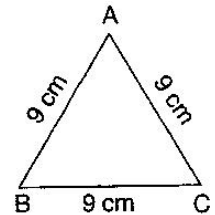
Perimeter of field = 2 x (length + breadth) = 2 x (0.7 + 0.5) = 2 x 1.2 = 2.4 km

   = 2.4 x 1000 m = 2400 m

Thus, the length of wire = 4 x 2400 = 9600 m = 9.6 m

6. (a) Perimeter of ΔABC = AB + BC + CA

   = 3 cm + 5 cm = 4 cm

   = 12 cm

   (b) Perimeter of equilateral ABC = 3 x side

   = 3 x 9 cm

   = 27 cm

   (c) Perimeter of ΔABC = AB + BC + CA

   = 8 cm + 6 cm + 8 cm

   = 22 cm
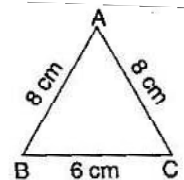
7. Perimeter of triangle = Sum of all three sides

   = 10 cm + 14 cm + 15 cm

   = 39 cm

Thus, perimeter of triangle is 39 cm.

8. Perimeter of Hexagon = 6 x length of one side

   = 6 x 8 m

   = 48 m

Thus, the perimeter of hexagon is 48 m.

9. Perimeter of square = 4 x side

   $\Rightarrow$ 20 = 4 x side $\Rightarrow$ side = $\dfrac{20}{4}$ = 5 cm

Thus, the side of square is 5 cm.

10. Perimeter of regular pentagon = 100 cm

   $\Rightarrow$ 5 x side = 100 cm $\Rightarrow$ side = $\dfrac{100}{5}$ = 20 cm

Thus, the side of regular pentagon is 20 cm.

11. Length of string = Perimeter of each figure

   (a) Perimeter of square = 30 cm

   $\Rightarrow$ 4 x side = 30 cm $\Rightarrow$ side = $\dfrac{30}{4}$ = 7.5 cm

Thus, the length of each side of square is 7.5 cm.

(b) Perimeter of equilateral triangle = 30 cm

$\Rightarrow$ 3 x side = 30 cm $\Rightarrow$ side = $\dfrac{30}{3}$ = 10 cm

Thus, the length of each side of equilateral triangle is 10 cm.

(c) Perimeter of hexagon = 30 cm

$\Rightarrow$ 6 x side = 30 cm $\Rightarrow$ side = $\dfrac{30}{6}$ = 5 cm

Thus, the side of each side of hexagon is 5 cm.

12. Let the length of third side be x cm.
Length of other two side are 12 cm and 14 cm.
Now, Perimeter of triangle = 36 cm
$\Rightarrow$ $12 + 14 + x = 36$ $\Rightarrow$ $26 + x = 36$
$\Rightarrow$ $x = 36 - 26$ $\Rightarrow$ $x = 10$ cm
Thus, the length of third side is 10 cm.

13. Side of square = 250 m
Perimeter of square   = 4 x side
                       = 4 x 250 = 1000 m
Since, cost of fencing of per meter = ₹ 20
Therefore, cost of fencing of 1000 meters = 20 x 1000 = = ₹ 20,000

14. Length of rectangular park = 175 m
Breadth of rectangular park = 125 m
Perimeter of park = 2 x (length + breadth)
                  = 2 x (175 + 125)
                  = 2 x 300 = 600 m
Since, cost of fencing park per meter = = ₹ 12
Therefore, cost of fencing park of 600 m = 12 x 600 = = ₹ 7,200

15. Distance covered by Sweety = Perimeter of square park
Perimeter of square   = 4 x side
                       = 4 x 75 = 300 m
Thus, distance covered by Sweety is 300 m.
Now, distance covered by Bulbul = Perimeter of rectangular park
Perimeter of rectangular park = 2 x (length + breadth)
                              = 2 x (60 + 45)
                              = 2 x 105 = 210 m
Thus, Bulbul covers the distance of 210 m.
And Bulbul covers less distance.

16. (a) Perimeter of square = 4 x side

$\qquad$ = 4 x 25 = 100 cm

(b) Perimeter of rectangle = 2 x (length + breadth)

$\qquad$ = 2 x (40 + 10)

$\qquad$ = 2 x 50 = 100 cm

(c) Perimeter of rectangle = 2 x (length + breadth)

$\qquad$ = 2 x (30 + 20)

$\qquad$ = 2 x 50 = 100 cm

(d) Perimeter of triangle = Sum of all sides

$\qquad$ = 30 cm + 30 cm + 40 cm = 100 cm

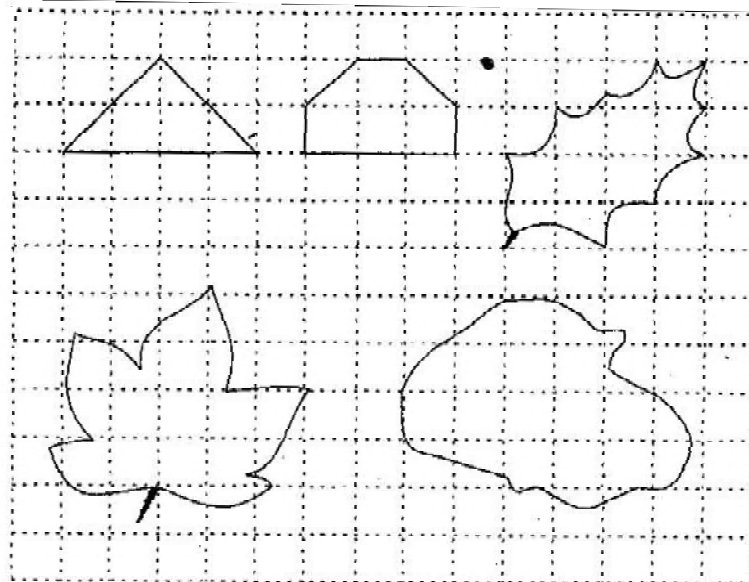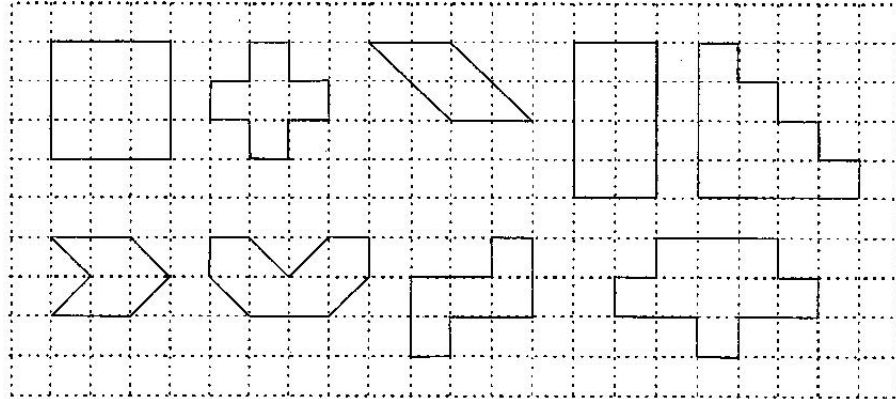Thus, all the figures have same perimeter.

17. (a) 6 m
    (b) 10 m
    (c) Second arrangement has greater perimeter.
    (d) Yes, if all the squares are arranged in row, the perimeter be 10 cm.

1. Find the areas of the following figures by counting squares:

1. (a) Number of filled square = 9
   ∴   Area covered by squares = 9 x 1 = 9 sq. units

   (b) Number of filled squares = 5
   ∴   Area covered by filled squares = 5 x 1 = 5 sq. units

   (c) Number of full filled squares = 2
   Number of half filled squares = 4
   ∴   Area covered by full filled squares = 2 x 1 = 2 sq. units

   And Area covered by half filled squares = $\cancel{4}$ x $\dfrac{1}{\cancel{2}}$ = 2 sq. units

   ∴   Total area = 2 + 2 = 4 sq. units

   (d) Number of filled squares = 8
   ∴   Area covered by filled squares = 8 x 1 = 8 sq. units

   (e) Number of filled squares = 10
   ∴   Area covered by filled squares = 10 x 1 = 10 sq. units

   (f) Number of full filled squares = 2
   Number of half filled squares = 4
   ∴   Area covered by full filled squares = 2 x 1 = 2 sq. units

   And Area covered by half filled squares = $\cancel{4}$ x $\dfrac{1}{\cancel{2}}$ = 2 sq. units

   ∴   Total area = 2 + 2 = 4 sq. units

   (g) Number of full filled squares = 4
   Number of half filled squares = 4
   ∴   Area covered by full filled squares = 4 x 1 = 4 sq. units

   And Area covered by half filled squares = $\cancel{4}$ x $\dfrac{1}{\cancel{2}}$ = 2 sq. units

   ∴   Total area = 4 + 2 = 6 sq. units

   (h) Number of filled squares = 5
   ∴   Area covered by filled squares = 5 x 1 = 5 sq. units

(i) Number of filled squares = 9

∴   Area covered by filled squares = 9 x 1 = 9 sq. units

(j) Number of full filled squares = 2

Number of half filled squares = 4

∴   Area covered by full filled squares = 2 x 1 = 2 sq. units

And Area covered by half filled squares = $\cancel{4}$ x $\dfrac{1}{\cancel{2}}$ = 2 sq. units

∴   Total area = 2 + 2 = 4 sq. units

(k) Number of full filled squares = 4

Number of half filled squares = 2

∴   Area covered by full filled squares = 4 x 1 = 4 sq. units

And Area covered by half filled squares = $\cancel{2}$ x $\dfrac{1}{\cancel{2}}$ = 1 sq. units

∴   Total area = 4 + 1 = 5 sq. units

(l) Number of full filled squares = 3

Number of half filled squares = 10

∴   Area covered by full filled squares = 3 x 1 = 3 sq. units

And Area covered by half filled squares = $\cancel{10}$ x $\dfrac{1}{\cancel{2}}$ = 5 sq. units

∴   Total area = 3 + 5 = 8 sq. units

(m) Number of full filled squares = 7

Number of half filled squares = 14

∴   Area covered by full filled squares = 7 x 1 = 7 sq. units

And Area covered by half filled squares = $\cancel{14}$ x $\dfrac{1}{\cancel{2}}$ = 7 sq. units

∴   Total area = 7 + 7 = 14 sq. units

(n) Number of full filled squares = 10

Number of half filled squares = 16

∴   Area covered by full filled squares = 10 x 1 = 10 sq. units

And Area covered by half filled squares = $\cancel{16}$ x $\dfrac{1}{\cancel{2}}$ = 8 sq. units

∴   Total area = 10 + 8 = 18 sq. units

1. Find the areas of the rectangles whose sides are:
   (a) 3 cm and 4 cm   (b) 12 m and 21 m
   (c) 2 km and 3 km   (d) 2 m and 70 cm

2. Find the areas of the squares whose sides are:
   (a) 10 cm   (b) 14 cm   (c) 5 cm

3. The length and the breadth of three rectangles are as given below:
   (a) 9 m and 6 m   (b) 17 m and 3 m   (c) 4 m and 14 m
   Which one has the largest area and which one has the smallest?

4. The area of a rectangle garden 50 m long is 300 m², find the width of the garden.

5. What is the cost of tilling a rectangular plot of land 500 m long and 200 m wide at the rate of ₹ 8 per hundred sq. m?

6. A table-top measures 2 m by 1 m 50 cm. What is its area in square meters?

7. A room us 4 m long and 3 m 50 cm wide. How many square meters of carpet is needed to cover the floor of the room?

8. A floor is 5 m long and 4 m wide. A square carpet of sides 3 m is laid on the floor. Find the area of the floor that is not carpeted.

9. Five square flower beds each of sides 1 m are dug on a piece of land 5 m long and 4 m wide. What is the area of the remaining part of the land?

10. By splitting the following figures into rectangles, find their areas. (The measures are given in centimeters)

(a)   (b)

11. Split the following shapes into rectangles and find their areas. (The measures are given in centimeters)

(a)   (b)   (c)
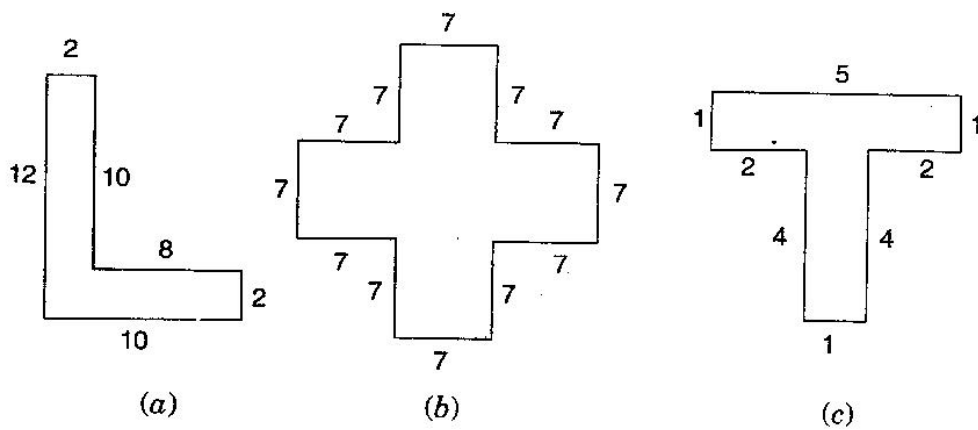
12. How many tiles whose length and breadth are 12 cm and 5 cm respectively will be needed to fit in a rectangular region whose length and breadth are respectively:
(a) 100 cm and 144 cm
(b) 70 cm and 36 cm

1. (a) Area of rectangle   = length x breadth
                            = 3 cm x 4 cm = 12 cm²
    (b) Area of rectangle   = length x breadth
                            = 12 m x 21 m = 252 m²
    (c) Area of rectangle   = length x breadth
                            = 2 km x 3 km = 6 km²
    (d) Area of rectangle   = length x breadth
                            = 2 m x 70 cm = 2 m x 0.7 m = 1.4 m²

2. (a) Area of square = side x side = 10 cm x 10 cm = 100 cm²
    (b) Area of square = side x side = 14 cm x 14 cm = 196 cm²
    (c) Area of square = side x side = 5 m x 5 m = 25 m²

3. (a) Area of rectangle   = length x breadth = 9 m x 6 m = 54 m²
    (b) Area of rectangle   = length x breadth= 3 m x 17 m = 51 m²
    (c) Area of rectangle   = length x breadth= 4 m x 14 m = 56 m²

    Thus, the rectangle (c) has largest area, i.e. 56 m² and rectangle (b) has smallest area, i.e., 56 m².

4. Length of rectangle = 50 m and Area of rectangle = 300 m²
    Since,   Area of rectangle = length x breadth

    Therefore,   Breadth = $\dfrac{\text{Area of rectangle}}{\text{Length}} = \dfrac{\cancel{300}}{\cancel{50}} = 6$ m

    Thus, the breadth of the garden is 6 m.

5. Length of land = 500 m and Breadth of land = 200 m
    Area of land = length x breadth = 500 m x 200 m = 1,00,000 m²
    ∵   Cost of tilling 100 sq. m of land = ₹ 8

    ∴   Cost of tilling 1,00,000 sq. m of land = $\dfrac{8 \times 1000\cancel{00}}{1\cancel{00}}$ = ₹ 8000

6. Length of table = 2 m and breadth of table = 1 m 50 cm = 1.50 m
    Area of table   = length x breadth
                      = 2 m x 1.50 m = 3 m²

7. Length of room = 4 m and breadth of room = 3 m 50 cm = 3.50 m

Area of carpet   = length x breadth
                 = 4 x 3.50 = 14m²

8. Length of floor = 5 m and breadth of floor = 4 m
    Area of floor   = length x breadth
                     = 5 m x 4 m = 20 m²
    Now, Side of square carpet = 3 m
    Area of square carpet = side x side = 3 x 3 = 9 m²
    Area of floor that is not carpeted = 20 m² – 9 m² = 11 m²

9. Side of square bed = 1 m
    Area of square bed = side x side = 1 m x 1 m = 1 m²
    ∴   Area of 5 square beds = 1 x 5 = 5 m²
    Now, Length of land = 5 m and breadth of land = 4 m
    ∴   Area of land = length x breadth = 5 m x 4 m = 20 m²
    Area of remaining part = Area of land – Area of 5 flower beds
                           = 20 m² – 5 m² = 15 m²

10. (a) Area of HKLM = 3 x 3 = 9 cm²
        Area of IJGH = 1 x 2 = 2 cm²
        Area of FEDG = 3 x 3 = 9 cm²
        Area of ABCD = 2 x 4 = 8 cm²
        Total area of the figure = 9 + 2 + 9 + 8 = 28 cm²
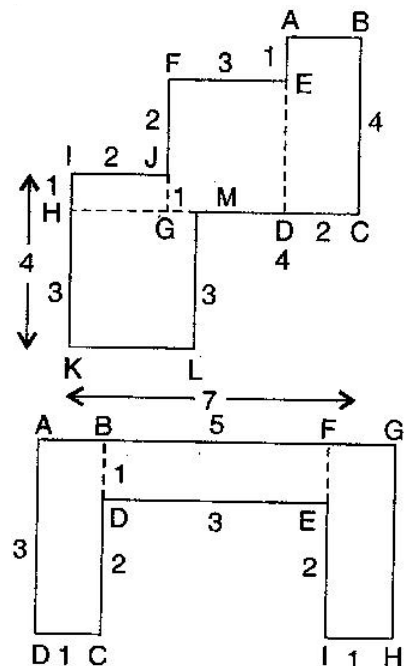
    (b) Area of ABCD = 3 x 1 = 3 cm²
        Area of BDEF = 3 x 1 = 3 cm²
        Area of FGHI = 3 x 1 = 3 cm²
        Total area of the figure = 3 + 3 + 3 = 9 cm²
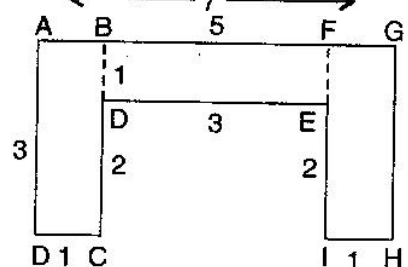
11. (a) Area of rectangle ABCD = 2 x 10 = 20 cm²
        Area of rectangle DEFG = 10 x 2 = 20 cm²
        Total area of the figure = 20 + 20 = 40 cm²
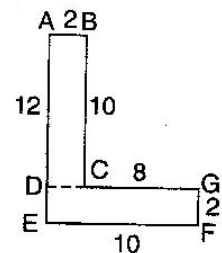
(b) There are 5 squares each of side 7 cm.
Area of one square = 7 x 7 = 49 cm²
Area of 5 squares = 49 x 5 = 245 cm²

(c) Area of rectangle ABCD = 5 x 1 = 5 cm²
Area of rectangle EFGH = 4 x 1 = 4 cm²
Total area of the figure = 5 + 4 cm²
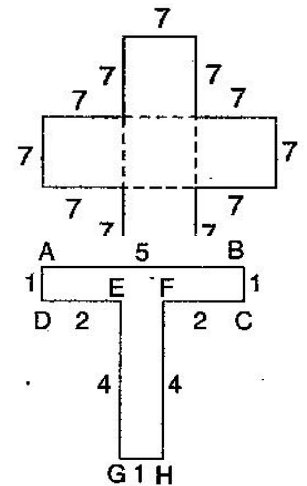
12. (a) Area of region = 100 cm x 144 cm = 14400 cm²
Area of one tile = 5 cm x 12 cm = 60 cm²

Number of tiles $= \dfrac{\text{Area of region}}{\text{Area of one tile}}$

$= \dfrac{14400}{60} = 240$

Thus, 240 tiles are required.

(b) Area of region = 70 cm x 36 cm = 2520 cm²
Area of one tile = 5 cm x 12 cm = 60 cm²

Number of tiles $= \dfrac{\text{Area of region}}{\text{Area of one tile}}$

$= \dfrac{2520}{60} = 42$

Thus, 42 tiles are required.