



MATHS

BOOKS - PEARSON IIT JEE

FOUNDATION

MENSURATION

Example

1. The side of a square is 5 m and the perimeter a rectangle is equal to the

perimeter of the square. If the length of the rectangle is 6 m, then find the ratio of the areas of the square and the triangle.



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2. A sign board indicating SCHOOL ZONE is in the form of an equilateral triangle with perimeter 120cm. Find the length of the side of the equilateral triangle.



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3. If the three sides of a triangle are the distinct prime factors of 225 (in cm), then find the perimeter of the triangle.



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4. Write the number of vertices, edges and faces of a pentagonal prism ?



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5. The dimensions of a gift box are $1.8 \times 1.5\text{cm} \times 0.8\text{cm}$. Find how much gift paper is required to cover it ? (Ignore the overlaps)



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6. If the lateral surface area of a cube is 72 sq. cm , then find the total surface area of the cube.



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7. The inner dimensions of a geometry box are $12\text{cm} \times 8\text{cm} \times 2\text{cm}$. How many erasers of length 4cm, breadth 2 cm and height 1 cm can be placed in the geometry box ?



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Very Short Type Questions

1. if the length of a rectangle is equal to the breadth of the rectangle then the rectangle

becomes a



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2. The side of an equilateral triangle is 672 cm long, then the perimeter of the triangle is



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3. The lengths of two sides of an isosceles triangle are 2016 cm and 2017 cm, then the maximum possible perimeter of a triangle is

A. 6050 cm

B. 5050 cm

C. 6040 cm

D. 7050 cm

Answer: A



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4. If the sum of the length and the breadth of rectangle is 1009 cm, then the perimeter of the reactangle is

A. 1018 cm

B. 2018 cm

C. 3018 cm

D. 3108 cm

Answer: *B*



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5. A square of the perimeter is p units, then its area is sq.units



6. If the angles are in the ratio $1:1:1$, then the ratio of their sides is

A. $1:1:1$

B. $1:2:3$

C. $1:\sqrt{3}:2$

D. $1:1:\sqrt{2}$

Answer: A



7. If the side of a square is doubled, then the area of the square

- A. remains same
- B. becomes double
- C. becomes triple
- D. becomes 4 times

Answer: D



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8. IF the area of square is $25m^2$, then the side of the square is

A. 125

B. 625

C. $\frac{1}{25}$

D. 5

Answer: D



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9. The area and perimeter of a square are numerically equal, then the numerical value of the side of the square is

A. 3

B. 4

C. 5

D. 6

Answer: B



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10. The length and breadth of a rectangle are in the ratio $3:2$. The perimeter of the rectangle is 10 cm, then its length is

A. 2

B. 5

C. 3

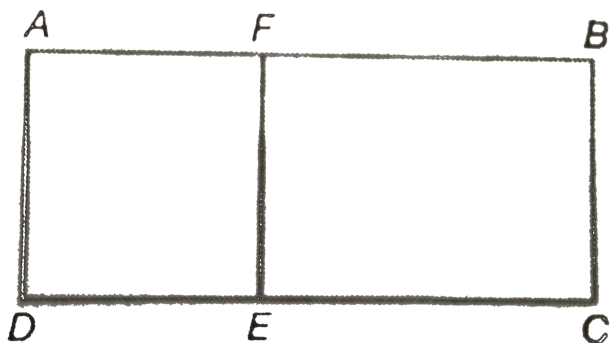
D. 4

Answer: C



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11. In the given figure, ABCD is a rectangle and ADEF is a square. The area of $\triangle ADE$ is $\frac{49}{2}$ sq. cm and $CE = 2DE$.



Using

the above data, match Column A with Column B.



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12. The total surface area of a cube of an edge 10 cm is



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13. The volume of a cuboidal box is 24cm^3 and base area is 12 sq. cm , then the height of the box is



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14. The perimeter of a base of a cuboid is 16 cm and the height of the cuboid is 2cm, then the lateral surface area of the cuboid is



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15. The sum of the lengths of all the edges of a cube is 60 cm, then the length of the edge of the cube is



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16. The edge of a cube is increased by 100% , then the lateral surface area of the cube is increased by _____ %



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17. The ratio of the lateral surface area and the total surface area of a cube is

A. $1:2$

B. $2:3$

C. $3:2$

D. 1 : 4

Answer: B



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18. The lateral surface area of a matchbox which is 6 cm, long 2cm wide and 1.5 cm thick is

A. 30

B. 34

C. 42

D. 24

Answer: D



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19. The total surface area of a cuboid which is 2.5 m, long 2m wide and 1.4m high is ___sq.cm.

A. 11.3

B. 22.6

C. 12.6

D. 7

Answer: B



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20. A cube is to be coloured in such a way that no two opposite faces have the same colour, then the minimum number of colours required is

A. 6

B. 2

C. 3

D. 4

Answer: B



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21. If the edge of a cube is doubled, then the volume of the cube is ___ that of the initial cube.

A. 4 times

B. 8 times

C. 12 times

D. 6 times

Answer: B



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Column A	Column B
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- | | | | | |
|-----|--|-----|-----|----|
| (a) | Number of vertices of a triangular prism | () | (p) | 5 |
| (b) | Number of edges of a cube | () | (q) | 12 |
| (c) | Number of surfaces of a square pyramid | () | (s) | 8 |
| (d) | Number of vertices of a cuboid | () | (r) | 6 |

22.



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Short Answer Questions

1. Let a, b and c be the three sides of triangle (in cm) such that $a + b = 2015, b + c = 2016$

and $c+a=2017$, then find the perimeter of the triangle.



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2. The area of a square field is $49m$. How many times Sunil has to run around the square field to cover $224cm$?



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3. A rectangular sheet is cut along its length into five equal squares as shown in the figure. The area of a square is 16cm^2 . Find the perimeter of the rectangle.



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4. Four identical strips in the form of right isosceles triangles are removed from the four

corners of a square sheet of side 8 cm. Find the area of the remaining sheet, if the length of each, equal sides of the triangles is 4 cm,

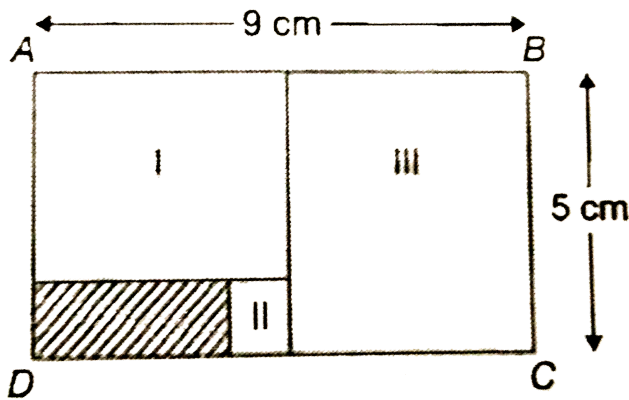


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5. In the given figure, ABCD is a rectangle I,II and III are squares. Find the area of the

shaded

region.



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6. From a square sheet of side 8 cm , a piece of a paper width 2 cm is removed along the border. Then find the area of the removed piece of paper.





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7. A hall in the shape of rectangle is 16 feet long and 12 feet wide. How many tiles with 2 feet x 1 feet are required to cover the floor of the hall ?



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8. Two persons A and B took a wire of equal length 'A' bent in the form of a rectangle with perimeter 12 cm. B bent it in the form of a

square, then find the area of the square , then find the area of the square formed.



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9. If the area of rectangle is 24 sq. cm and the length and breadth are integers in cm, then find the maximum possible perimeter of the rectangle.



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10. The perimeter of a rectangle is 26 cm. The length and the breadth of the rectangle are integers. Find the number of possible pairs of length and breadth. Also find the maximum possible area of the rectangle.



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11. Two sides of a triangle are 2016 cm and 2017 cm , then find the minimum possible perimeter of the triangle which is an integer in cm.



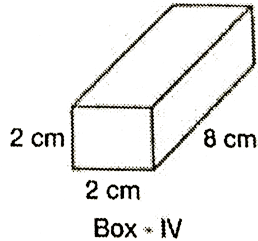
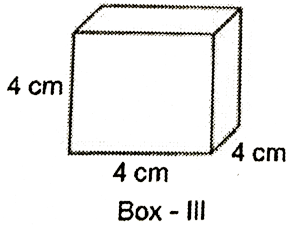
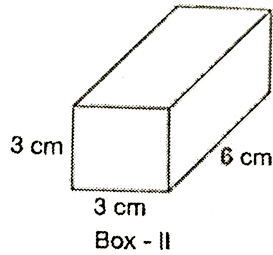
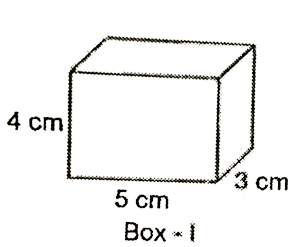


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12. A Rubik's cube of edge 3 cm is formed with 27 identical cubes. Find the edge of each identical cube.



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13.

Tarun made 4 types of boxes as shown in the figure. Arrange them in the descending order of their volumes.



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14. The dimensions of a room are $20\text{ ft} \times 15\text{ ft} \times 12\text{ ft}$. Find the cost of painting the walls of the room at rupees 20 per sq. ft.



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15. Four identical square pieces of side 2 cm are removed from the four corners of a square sheet of side 6 cm. The remaining paper is folded to form a cuboidal box without lid. Find the outer surface area of the box.



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16. The dimensions of a trench are $6m \times 3m \times 4.5m$. Find the cost incurred in digging it at rupees 250 per cubic metre.

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17. A cuboidal container which is 30-cm long, 20-cm wide and 15-cm high is full of water. The water is to be poured into cubical containers

of each edge which is 10 cm. How many such containers are required?



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Concept Application

1. The floor of a study room is in the shape of a rectangle, it is 12 ft long and 10 ft wide. How many tiles with $2\text{ ft} \times 2\text{ ft}$ are required to cover the floor of the room ?

A. 120

B. 60

C. 40

D. 30

Answer: D



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2. The perimeter of a rectangle is 30 cm. The length and breadth of the rectangle are

inegers in cm. Find the number of possible pairs of length and breadth in cm.

A. 1

B. 6

C. 7

D. 8

Answer: C



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3. Th

A. 500

B. 650

C. 750

D. 1500

Answer: C



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4. Four dice of edge 1 cm are stacked so as to form a cuboid. Find the total surface area of the cuboid (in square centimetres).

A. 4

B. 8

C. 9

D. 18

Answer: D



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5. Two sides of triangle are 2018 cm and 2019 cm, then find the minimum possible perimeter of the triangle which is an integer in cm.

A. 4037

B. 4038

C. 4039

D. 8069

Answer: C



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Assessment Test

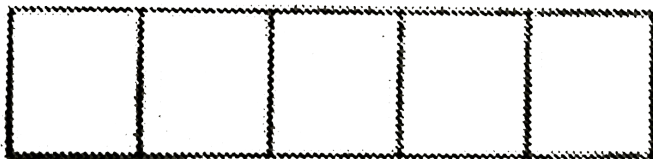
1. The length of each equal sides of an isosceles triangle is 13 cm and the perimeter of the triangle is 36cm. Find the length of the unequal side of the triangle.



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2. A rectangle of perimeter 276 cm is cut into five equal squares as shown below. Find the

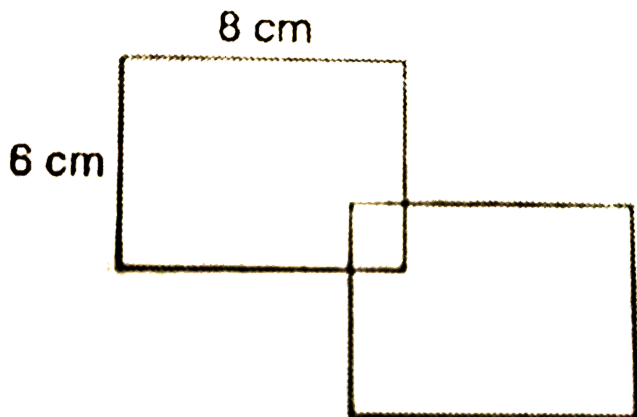
area of each squares.



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3. Two identical rectangles of dimensions $8cm \times 6cm$ are overlapping as shown in the figure . The overlapped part is a square of side

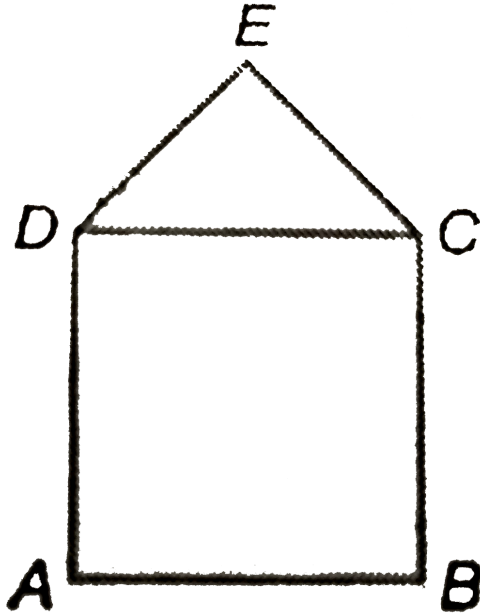
2 cm. Find the area of the given figure.



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4. In the given figure, ABCD is a square of side 6 cm and CDE is an equilateral triangle. Find

the perimeter of the figure.



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5. The edge of a cube is 3 cm. Find the total surface area and the volume of the cube.



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6. Water the number of vertices, edges and faces of a pentagonal pyramid ?



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7. A container of dimensions $20\text{cm} \times 15\text{cm} \times 5\text{cm}$ is full of water. If it is leaking at the rate of 25 millions per second, then how long will it take to empty the container ?



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8. Four identical cubes of edge 5cm are placed side by side to form a cuboid of length 20cm . Find the total surface area and volume of the cuboid.



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9. There is a cubical box of edge 6 cm . its top and bottom are covered with red colour

canvas and the other four faces is covered with blue colour canvas. How much red colour and blue colour canvas cloth is required ?



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10. A car runs 20 times around a rectangular track which is 200-m long and 150-m wide. How much distance does the car cover ?



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11. Find the perimeter of an equilateral triangle with side 8 cm.



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12. Border of a square-shaped frame which is 16-cm long needs to be painted. If the cost of painting 1 m of border is rupees 4, how much would it cost to paint the entire border of the frame ?



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13. A 10 -m long hall has a floor area of $100m^2$.

Find its perimeter.



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14. The perimeter of a 40-cm wide rectangle is

160 cm. Find the area.



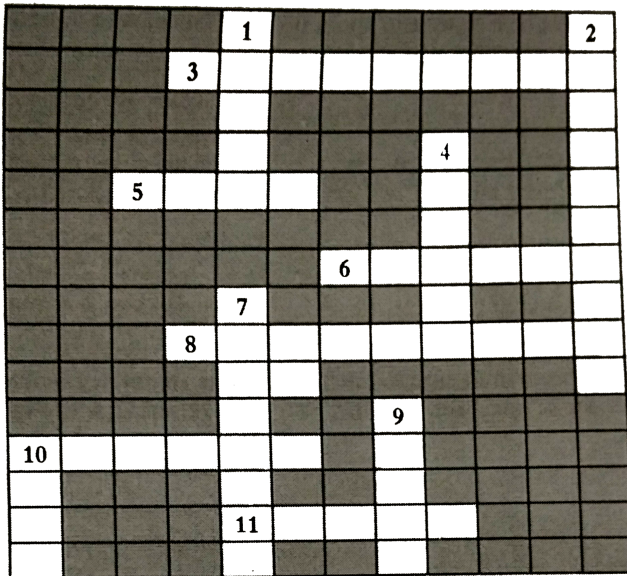
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15. A cube -shaped oil tank which is 1.5-m long is full of oil . If 500L of oil spills out from the tank, how much oil remains in it?



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Crossword



1.

Across

- . A quadrilateral of equal angles
- . The region bounded by the sides of a plane figure
- . A rectangle with equal adjacent sides
- . Total length of the boundary of a plane figure
- . A solid with rectangular faces
- . These are twelve for a cube or cuboid
- . Hundred centimetres
- . One-hundredth of a metre
- . Amount of space occupied by a solid
- . The edges of cuboid meet here
- . These are six for a cube or cuboid
- . A solid with square faces



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