Ex 7.2

TSA of a cube = $6a^2$ $Sq.units$
LSA of the cube = $4a^2$ $Sq.units$
TSA of cuboids = $2(lb+bh+lh)$
LSA of cuboids = $2(l+b) \times h$

1) Find the Total Surface Area and the Lateral Surface Area of a cuboid whose dimensions are: length = 20 cm, breadth = 15 cm and height = 8 cm

Sol

l = 20cm, b=15cm, h=8cm

TSA=2(lb+bh+lh)

TSA =2(20×15+15× 8+20×8)

= 2(300+120+160)

= 2 (580)

= 1160 $sq.cm$

LSA = 2(l+b)× h

LSA = 2(20+15)× 8

= 2(35)× 8

=70×8

=560 $sq.cm$

Question 2

The dimensions of a cuboidal box are 6 m × 400 cm × 1.5 m. Find the cost of painting its entire outer surface at the rate of ₹22 per m^2.

Sol

9688884185

l = 6m, b=400cm or 4 m , h=1.5m

TSA=2(lb+bh+lh)

TSA =2(6×4+4× 1.5+1.5×6)

= 2(24+6+9)

= 2 (39)

= 78 $sq.cm$

cost of painting per sq.cm 22

= 78×22

= Rs 1716

Q3

The dimensions of a hall is 10 m × 9 m × 8 m. Find the cost of white washing the walls and ceiling at the rate of ₹8.50 per m^2.

Sol

LSA of cuboid = 2(l+b) × h

1) l = 10cm, b=9cm, h=8cm

LSA = 2(l+b)× h + lb (: ceiling of wall)

LSA = 2(10+9)× 8 + 10 × 9

= 2(19)× 8 + 90

=38×8 + 90

=304 + 90 $sq.cm$

= 394 $sq.cm$

cost of white washing per sq.cm 8.50

= 394×8.50

= Rs 3349

9688884185

Q 4

Find the TSA and LSA of the cube whose side is (i) 8 m (ii) 21 cm (iii) 7.5 cm

Sol

TSA of a cube = $6a^2$ $Sq.units$
LSA of the cube = $4a^2$ $Sq.units$

(I)　　8 cm

TSA of a cube = $6a^2$ $Sq.units$

$$= 6×8×8$$

$$= 384 \ sq.m$$

LSA of the cube = $4a^2$ $Sq.units$

$$= 4 × 8 × 8$$

$$= 256 \ sq.m$$

(II)　21 cm

TSA of a cube = $6a^2$ $Sq.units$

$$= 6×21×21$$

$$= 2646 sq.cm$$

LSA of the cube = $4a^2$ $Sq.units$

$$= 4 × 21× 21$$

9688884185

= 1764 $sq.cm$

(III)　　7.5 cm

TSA of a cube = $6a^2$ $Sq.units$

$$= 6 \times 7.5 \times 7.5$$

$$= 337.5 sq.cm$$

LSA of the cube = $4a^2$ $Sq.units$

$$= 4 \times 7.5 \times 7.5$$

$$= 225 \ sq.cm$$

Q5

If the total surface area of a cube is 2400 cm^2 then, find its lateral surface area.

Sol　TSA of a cube = $6a^2$ $Sq.units$

TSA of a cube = 2400 $sq.cm$

$6a^2$ = 2400

a^2 = 2400 / 6

a^2 = 400

$a = 20$ cm

LSA of the cube = $4a^2$ $Sq.units$

$$= 4 \times 400$$

$$= 1600 \ sq.cm$$

Q6

A cubical container of side 6.5 m is to be painted on the entire outer surface. Find the area to be painted and the total cost of painting it at the rate of ₹24 per m^2.

Sol

Side of the cube $= 6.5$ cm

TSA of a cube $= 6a^2 \ Sq.units$

$$= 6 \text{X} 6.5 \text{X} 6.5$$

$$= 253.50 \ sq.cm$$

Cost of painting one $sq.cm$ 24

$$= 253.50 \text{ x } 24$$

$$= \text{Rs } 6084$$

Q7

Three identical cubes of side 4 cm are joined end to end. Find the total surface area and lateral surface area of the new resulting cuboid.

TSA of cuboids $= 2(lb+bh+lh)$
LSA of cuboids $= 2(l+b) \times h$

Length of cuboid $= 4+4+4 = 12$ cm

9688884185

Breath = 4 cm

Height = 4 cm

TSA = 2(12×4+4× 4+4×12)

= 2(48+16+48)

= 2 (112)

= 224 $sq.cm$

LSA = 2(l+b)× h

LSA = 2(12+4)× 4

= 2(16)× 4

=32×4

=128 $sq.cm$

9688884185