And Cloth required to 5 green pieces = $5 \times 200\sqrt{6}$

$= 1000\sqrt{6} cm^2$

Q7. A kite is in the shape of a square with a diagonal 32 cm and an isosceles triangle of base 8 cm and sides 6 cm each is to be made of three different shades as shown in figure.
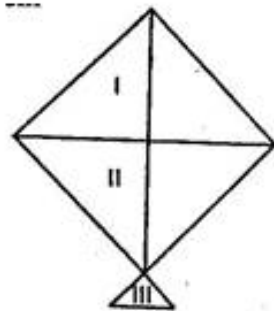
How much paper of each side has been used in it?

Ans. Let ABCD is a square of side a cm and diagonals AC = BD = 32 cm

In right triangle ABC, $AB^2 + BC^2 = AC^2$ [Using Pythagoras theorem]

$\Rightarrow a^2 + a^2 = (32)^2$

$\Rightarrow 2a^2 = 32 \times 32$

$\Rightarrow a^2 = \dfrac{32 \times 32}{2} = 512$

$\Rightarrow$ Area of square = $512\ cm^2$ [Area of square = $side \times side$]

Diagonal BD divides the square in two equal triangular parts I and II.

$\therefore$ Area of shaded part I = Area of shaded part II

$$= \frac{1}{2} \times 512 = 256 \ cm^2$$

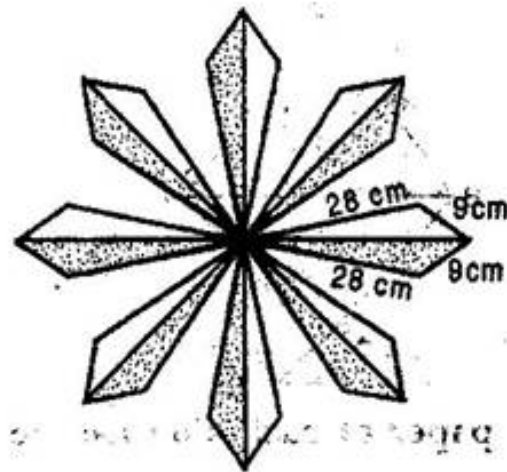Now, semi-perimeter of shaded part III

$$(s) = \frac{6+6+8}{2} = 10 \ cm$$

Area of shaded part III = $\sqrt{s(s-a)(s-b)(s-c)}$

$$= \sqrt{10(10-6)(10-6)(10-8)}$$

$$= \sqrt{10 \times 4 \times 4 \times 2} = 8\sqrt{5}$$

$$= 8 \times 2.236 = 17.88 \ cm^2$$

Q8. A floral design on a floor is made up of 16 tiles which are triangular, the sides of the triangle being 9 cm, 28 cm and 35 cm (see figure). Find the cost of polishing the tiles at the rate of 50 paise per cm².

Ans. Here, Sides of a triangular shaped tile area 9 cm, 28 cm and 35 cm.

Semi-perimeter of tile (s) $= \frac{9+28+35}{2} = 36 \ cm$

Area of triangular shaped tile =

$$\sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{36(36-9)(36-28)(36-35)}$$

$$= \sqrt{36 \times 27 \times 8 \times 1} = 36\sqrt{6}$$

$$= 36 \times 2.45 = 88.2 \ cm^2 \ (\text{approx.})$$

∴ Area of 16 such tiles $= 16 \times 88.2 = 1411.2 \ cm^2$ (Approx.)

∵ Cost of polishing $1 \ cm^2$ of tile = Rs. 0.50

∴ Cost of polishing $1411.2 \ cm^2$ of tile = Rs. 0.50×1411.2 = Rs. 705.60 (Approx.)

Q9. A field is in the shape of a trapezium whose parallel sides are 25 m and 10 m. The non-parallel sides are 14 m and 13 m. Find the area of the field.

Ans. Let ABCD be a field in the shape of trapezium and parallel side AB = 10 m & CD = 25 m
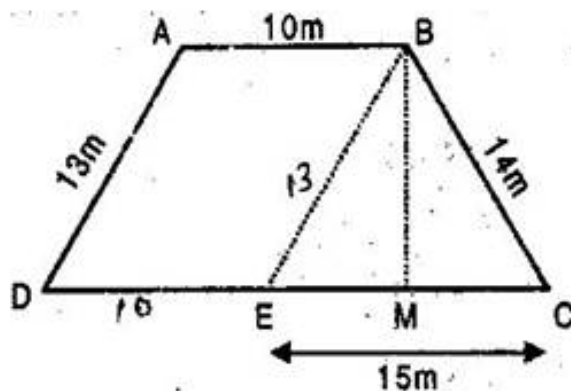
And Non-parallel sides AD = 13 m and BC = 14 m

Draw BM $\perp$ DC and BE $\parallel$ AD so that ABED is a parallelogram.

$\therefore$ BE = AD = 13 m and DE = AB = 10 m

Now in $\triangle$ BEC, Semi-perimeter $(s) = \dfrac{13+14+15}{2}$

= 21 m

Area of $\triangle$ BEC = $\sqrt{s(s-a)(s-b)(s-c)}$

= $\sqrt{21(21-13)(21-14)(21-15)}$

= $\sqrt{21 \times 8 \times 7 \times 6}$ = $84\ m^2$

And Area of $\triangle$ BEC = $84\ m^2$

$\Rightarrow \dfrac{1}{2} \times EC \times BM$ = 84

$\Rightarrow \dfrac{1}{2} \times 15 \times BM$ = 84

$\Rightarrow$ BM = $\dfrac{84 \times 2}{15}$ = 11.2 m

Now area of trapezium ABCD =

$\dfrac{1}{2}(AB + CD) \times BM$

= $\dfrac{1}{2}(10 + 25) \times 11.2$

= $196\ m^2$

********** END *********