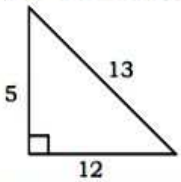
SOLUTIONS

1. (b) Given sides are (5, 12, 13)



Which are sides of a right angled triangle.

Area = $\frac{1}{2}$ base × height

$\therefore$ area = $\frac{1}{2} \times 12 \times 5 = 30\ cm^2$

2. (a) Let the sides of a right angled Δ is $(5x, 12x \& 13x)$

ATQ,

$\Rightarrow 5x + 12x + 13x = 90$

$\Rightarrow 30x = 90$

$\Rightarrow x = 3$

$\therefore$ Area = $\frac{1}{2}$ × base × height

$= \frac{1}{2} \times 5x \times 12x \Rightarrow 30x^2$

= Put, the value of x

We get,

$= 270\ cm^2$

3. (d) Let side of equilater triangle is 'a' cm

Area of equilater triangle

$= \frac{\sqrt{3}}{4} \times a^2$

ATQ,

$\frac{\sqrt{3}}{4}a^2 = 4\sqrt{3} \Rightarrow a = 4$ cm

4. (c) Given, l = 126 ft. b = 90 ft.

HCF (l, b) = 18

$\therefore$ Area of tiles = 18 × 18

$= 324\ ft^2$

SMART APPROACH:-
Now, this type of questions we solve go through by digital sum
Area of rectangular hall = $l \times b$
= 126 × 90 ⇒ 11340
Digital sum = 9
Now check the option (c)
324 = 9 (digital sum)
Hence, option (c) is correct.

5. (a) Let, the side of equilateral triangle is 'a' cm

Then, ATQ

$\frac{\sqrt{3}}{4}a^2 = \frac{1.732}{4} \times a^2 = 173.2$

$\Rightarrow a^2 = 100 \times 4$

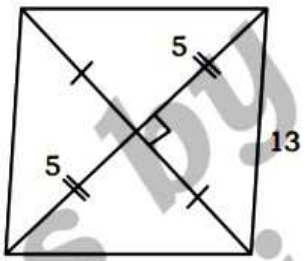
$\Rightarrow a = 20$ cm

6. (d) Perimeter of rhombus

$= 4a \Rightarrow 52$

$\Rightarrow a = 13$ cm

$d_1 = 10$ cm



$\Rightarrow d_2 = \left(\sqrt{13^2 - 5^2}\right) \times 2$

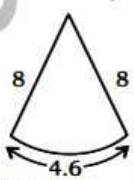
$= 24$ cm

$\therefore$ area of rhombus = $\frac{1}{2} \times d_1 \times d_2$

$= \frac{1}{2} \times 10 \times 24 = 120\ cm^2$

7. (a) Given,

r = 8 cm, l = 4.6 cm



We know that,

Area of sector = $\frac{lr}{2}$

$= \frac{1}{2} \times 4.6 \times 8$

$= 18.4\ cm^2$

8. (b) r = 1.75 cm

circumference of circle = $2\pi r$

$2\pi r = 2 \times \frac{22}{7} \times 1.75$

$= 44 \times 0.25$

$= 11$ cm

9. (a) Given, Area of rectangular field = $480 m^2$

After increase 20%

b = $\frac{5}{6}l$

$l \times b = 480$

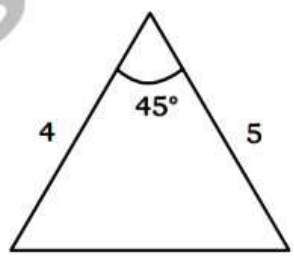
Then, $l \times \frac{5l}{6} = 480$

$l^2 = \frac{480 \times 6}{5} \Rightarrow 96 \times 6$

$l^2 = 576$

$\Rightarrow l = 24$ m

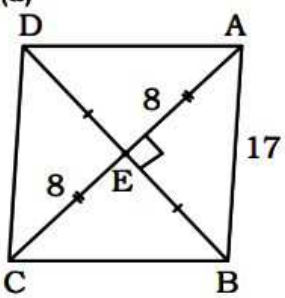
10. (d)



Area = $\frac{1}{2} \times 5 \times 4 \times \sin 45°$

$= 10 \times \frac{1}{\sqrt{2}} = 5\sqrt{2}\ cm^2$

11. (d)



EB = $\sqrt{17^2 - 8^2}$

= 15

$\therefore d_1 = 16,\ d_2 = 30$

Area = $\frac{1}{2} \times 16 \times 30$

$= 240\ cm^2$

12. (b)

Given, circumference of circle = 13.2 cm

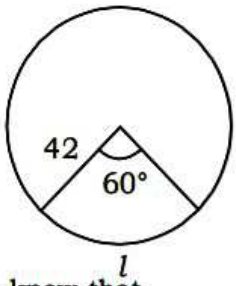
ATQ,

$2\pi r = 13.2$

$r = 13.2 \times \frac{7}{22} \times \frac{1}{2}$

= 2.1 cm

13. (b)



We know that,

$\frac{60°}{360°} \times 2\pi r = l$

$\Rightarrow \frac{2}{6} \times \frac{22}{7} \times 42 = l$

$\Rightarrow l = 44$ cm

14. (d) Let, $l = 3x$, $b = 8x$

Area = $24x^2 = 1944$

$\Rightarrow x^2 = 81$

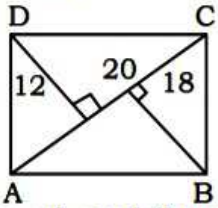
$x = 9$

$\therefore l = 27$, $b = 72$

Perimeter = $2(l + b) = 2 \times 99$

= 198 cm

15. (d)



Area of quadrilateral = area of triangles ABC and ADC

$= \left(\frac{1}{2} \times 20 \times 12\right) + \left(\frac{1}{2} \times 18 \times 20\right)$

$= 10 \times 30 = 300$ m²

16. (d) Length of arc $= \frac{\theta}{360} \times 2\pi r$

$\Rightarrow 2r = \frac{\theta}{360} \times 2\pi r$

$\Rightarrow \theta = \frac{360}{\pi}$

Now, Area of sector OAB

$= \frac{\theta}{360} \times \pi r = \frac{360}{\pi} \times \frac{1}{360} \times \pi r^2 = r^2$

SMART APPROACH:-

Given that

Radius = r, length of arc = 2r

We know,

Area of arc = $\frac{1}{2}$ × length of arc × radius

Then,

Area of arc = $\frac{1}{2} \times 2r \times r = r^2$

17. (b) Perimeter of sector

$= \frac{\theta}{360} \times 2\pi r + 2r$

Angle of Major Sector = 360° – 75°

= 285°

Perimeter of Major Sector

$= \frac{285}{360} \times 2\pi \times 12 + 2 \times 12$

$= 19\pi + 24$ meter

18. (b) Formula used, volume of cuboid = length × breadth × height

Area of rectangular field = length × breadth

= 90 × 75 = 6750 sq. m

Area of pit = 18 × 15 = 270 sq. m

Remaining area of the field where the earth has to spreaded over

= 6750 – 270 = 6480 m²

Volume of the earth = Volume of pit

⇒ Remaining Area × h = 18 × 15 × 6

⇒ 6480 × h = 1620

⇒ h = 0.25 m

Rise in the level of the earth

= 25 cm

19. (c) Perimeter of square = Perimeter of rectangle

⇒ 4 × side = 2(Length + Breadth)

⇒ 4 × side = 2(10 + 8)

⇒ 4 × side = 36

⇒ side = 9 cm

∴ Area of square = side² = 9² = 81 cm²

20. (c) Factor of 62 = 2 × 31

Factor of 186 = 2 × 3 × 31

Factor of 279 = 3 × 3 × 31

HCF = 31 m

21. (b) Let the diameter of blue semi-circle = 6 units

∴ Radius of blue semi-circle = 3 units

Diameter of red semi-circle

$= \frac{6}{3} = 2$ units

∴ Radius of red semi-circle = 1 unit

Ratio between red and blue area is

$= 3 \times \frac{1}{2}\pi(1)^2 : \left\{\frac{\pi}{2}(3)^2 - 3 \times \frac{1}{2}\pi(1)^2\right\}$

$= 3\pi : 6\pi = 1 : 2$

22. (b) Length of longest pole

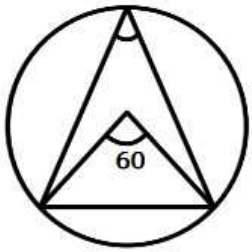
$= \sqrt{l^2 + b^2 + h^2}$

$= \sqrt{(60)^2 + (30)^2 + (20)^2}$

$= \sqrt{3600 + 900 + 400}$

$= \sqrt{4900} = 70$ feet

23. (c)



If chord length is equal to radius of circle, the formed Δ will be equilateral.

Angle subtended by the chord in major segment $= \frac{60°}{2} = 30°$

24. (d) Area of circle = πr^2

$\Rightarrow 1386 = \frac{22}{7} \times r^2$

$\Rightarrow r^2 = \frac{1386 \times 7}{22}$

$\Rightarrow r^2 = 441$

$\Rightarrow r = 21$cm

25. (a) Area of sector $= \frac{\theta}{360} \times \pi r^2$

$\Rightarrow 128 = \frac{\theta}{360} \times \pi r^2$ .....(1)

Arc length $= \frac{\theta}{360} \times 2\pi r$

$\Rightarrow 64 = \frac{\theta}{360} \times 2\pi r$ .....(2)

On dividing (1) by (2), we get:

$\Rightarrow 2 = \frac{r}{2}$

$\Rightarrow r = 4$ cm

SMART APPROACH:-

Given that

Area of arc = 128 cm², length of arc = 64 cm

We know,

$128 = \frac{1}{2} \times 64 \times r$

r = 4 cm

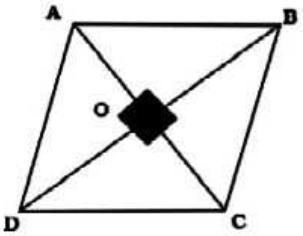
26. (c) Length of arc $= \frac{\theta}{360} \times 2\pi r$

$\Rightarrow 19 = \frac{\theta}{360} \times 2 \times \frac{22}{7} \times 30$

$\Rightarrow \theta = \frac{19 \times 360 \times 7}{2 \times 22 \times 30}$

$= \frac{47880}{1320} = 36.27°$

27. (b) Given,



Perimeter = 4P
Sum of diagonals = L
In Rhombus ABCD

$$AB = BC = CD = DA = \frac{4P}{4} = P$$

We know that, diagonals of rhombus bisect each other at 90°.

$$OA = OC = \frac{AC}{2}$$

$$OB = OD = \frac{BD}{2}$$

In ΔAOB,

$OA^2 + OB^2 = AB^2$

$$\Rightarrow \left(\frac{AC}{2}\right)^2 + \left(\frac{BD}{2}\right)^2 = AB^2$$

$$\Rightarrow \left(\frac{AC}{2}\right) + \left(\frac{BD}{2}\right)^2 = P^2$$

$\Rightarrow AC^2 + BD^2 = 4P^2$ ... (1)

Again,

$AC + BD = L$

squaring both sides

$\Rightarrow (AC + BD)^2 = L^2$

$\Rightarrow AC^2 + BD^2 + 2AC.\ BD = L^2$

From eqn(1)

$\Rightarrow 4P^2 + 2AC.\ BD = L^2$

$\Rightarrow 2AC.BD = L^2 - 4P^2$

$$\Rightarrow AC.BD = \frac{1}{2}(L^2 - 4P^2)$$

Area of rhombus ABCD

$$= \frac{1}{2} \times AC \times BD$$

$$= \frac{1}{2} \times \frac{1}{2}(L^2 - 4P^2) = \frac{1}{4}(L^2 - 4P^2)$$

SMART APPROACH:-

Given that,
$d_1 + d_2 = L$, perimeter of rhombus 4P
than,
side of rhombus = P
than,
$d_1^2 + d_2^2 = 4P^2$
we know,
$(d_1 + d_2)^2 = d_1^2 + d_2^2 + 2d_1 d_2$
$d_1 d_2 = 1/2\ (L^2 - 4P^2)$
Then,
Area of rhombus = $1/4\ (L^2 - 4P^2)$

28. (b) Length of the longest rod

$$= \sqrt{l^2 + b^2 + h^2} = \sqrt{12^2 + 9^2 + 8^2}$$

$$= \sqrt{144 + 81 + 64} = \sqrt{289} = 17\text{m}$$

29. (d) Given,

L = 10 m

B = 5 m

H = 6 m

Area of hall to be painted excluding surface

$= 2(l + b)h + l \times b$

$= 2(10 + 5)6 + 10 \times 5 = 180 + 50$

$= 230\text{m}^2$

30. (d) Let the sides of triangle be

a = 10 cm

b = 12 cm

c = 18 cm

$$\text{Semi-Perimeter, } S = \frac{a+b+c}{2}$$

$$= \frac{10+12+18}{2} = 20 \text{ cm}$$

$$\text{Area of } \Delta = \sqrt{S(S-a)(S-b)(S-c)}$$

$$= \sqrt{20(20-10)(20-12)(20-18)}$$

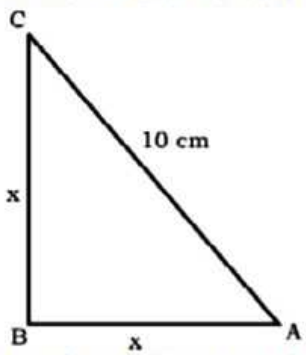
$$= \sqrt{20 \times 10 \times 8 \times 2}$$

$$= 40\sqrt{2}\ \text{cm}^2$$

31. (b) Area of $\Delta = \frac{1}{2} \times \text{Base} \times \text{Height}$

$$= \frac{1}{2} \times 15 \times 6 = 45\ \text{cm}^2$$

32. (d) Let the two equal sides of ΔABC AB and BC be x cm.



By the pythagorean theorem,

$AB^2 + BC^2 = AC^2$

$\Rightarrow x^2 + x^2 = 10^2$

$\Rightarrow 2x^2 = 100$

$\Rightarrow x^2 = 50$

$\Rightarrow x = 5\sqrt{2}$

SMART APPROACH:-

Equal sides of isosceles right angle triangle

$$= \frac{\text{hypotenuse}}{\sqrt{2}}$$

$$= \frac{10}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = 5\sqrt{2}\ \text{cm}$$

33. (c) Given,

$s - a = 18$ cm

$s - b = 17$ cm

$s - c = 25$ cm

On adding

$\Rightarrow 3s - (a + b + c) = 60$

$\Rightarrow 3s - 60 = a + b + c$

We know that,

$$s = \frac{a+b+c}{2}$$

$$\Rightarrow s = \frac{3s-60}{2}$$

$\Rightarrow 2s = 3s - 60$

$\Rightarrow s = 60$

Area of Δ

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

$$= \sqrt{60 \times 18 \times 17 \times 25} = 30\sqrt{510}\ \text{cm}^2$$

34. (a) If length of rectangle = $3x$

Breadth of a rectangle

$$= 3x \times \frac{2}{3} = 2x$$

Perimeter of a rectangle = Perimeter of a square

$2(3x + 2x) = 40$

$5x = 20$

$x = 4$

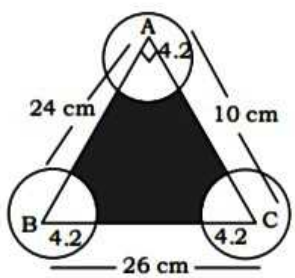
Length = $3x$ = 12 m

Breadth = $2x$ = 8 m

Area of a rectangle = Length × Breadth

$= 12 \times 8 = 96\ \text{m}^2$

35. (d)



$\because$ ΔBAC is a right angle triangle–

$26^2 = 24^2 + 10^2$

redius of each circle = 4.2 cm

Area of seetorian circles –

$$= \frac{180°}{360°} \pi r^2$$

[∵ a triangle is always 180°]

$= \frac{1}{2} \times \frac{22}{7} \times 4.2 \times 4.2$

$= 27.72 \text{ cm}^2$

Area of $\Delta ABC = \frac{1}{2} \times BA \times AC$

$= \frac{1}{2} \times 24 \times 10 = 120 \text{ cm}^2$

Area of remaining region

$= 120 - 27.72 = 92.28 \text{ cm}^2$

SMART APPROACH:-

Sides of triangle is 10cm, 24cm and 26cm

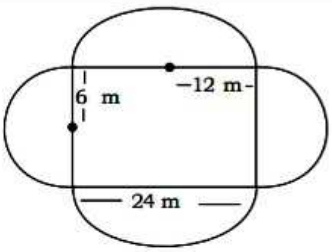
(10, 24, 26) is triplate

∴ Area of remaining region = area of triangle – area of sectarian circles

$\Rightarrow \frac{1}{2} \times 10 \times 24 - \frac{1}{2} \times \frac{22}{7} \times 4.2 \times 4.2$

$= 92.28 \text{ cm}^2$

36. (c)



Area of rectangle = $12 \times 24 = 288 \text{ m}^2$

Area of circular portion of lawn

$= \pi \times 12^2 + \pi \times 6^2$

$= 3.14 \times (144 + 36)$

$= 3.14 \times 180 = 565.2 \text{ m}^2$

Total area of the lawn

$= 288 + 565.2 = 853.2 \text{ m}^2$

Total cost = 853.2 × Rs.100

= Rs. 85320

37. (a) A Wheel covered distance in one revolution = $2\pi r$

A weel covered total in 12 revolution = $12 \times 2\pi r$

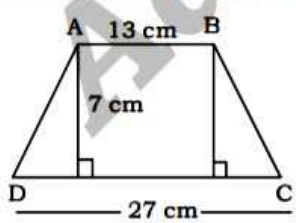
$= 2r = 42 \text{ cm}$

$r = 21 \text{ cm}$

$= 12 \times 2 \times \frac{22}{7} \times 21$

$= 24 \times 66 = 1584 \text{ cm} = 15.84 \text{ m}$

38. (b)



Area of the trapezium –

$= \frac{1}{2} \times (13 + 27) \times 7 = 140 \text{ cm}^2$

$= \frac{140}{10000} \text{ m}^2 = 0.014 \text{ m}^2$

39. (d) Area of the trapezium –

$= \frac{1}{2} \times (17 + 15) \times 6$

$= 96 \text{ cm}^2$

$= 0.0096 \text{ m}^2$

40. (d) ∵ Area of a hexazon

$= 6 \times \frac{\sqrt{3}}{4} \times (\text{side})^2$

$= 6 \times \frac{\sqrt{3}}{4} \times a^2 = 1944\sqrt{3}$ (a = side)

$a^2 = \frac{1944 \times 4}{6}$

$a^2 = 324 \times 4$

$a = 36 \text{ m}$

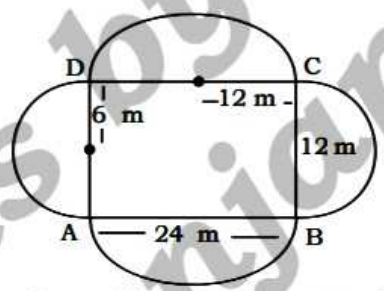
Perimeter of the hexazon

$= 6 \times 36 = 216 \text{ m}$

Total cost = 216 × 11.5 = 108 × 23

= Rs.2484

41. (c)



Area of rectangle = $12 \times 24 = 288 \text{ m}^2$

Ar. of circular portion of the lawn

$= \pi \times 12^2 + 6^2 \times \pi$

$= 3.14 \times (144 + 36)$

$= 3.14 \times 180$

$= 565.2 \text{ m}^2$

Total area of the lawn

$= 288 + 565.2 = 853.2 \text{ m}^2$

42. (c) Side of square = a

diagonal = $a\sqrt{2}$

$a\sqrt{2} = 6\sqrt{2}$

$a = 6 \text{ cm}$

Perimeter of square = $4 \times 6 = 24 \text{ cm}$

Base of triangle = 24 cm

Height of triangle = ?

∵ Height of triangle is equal to side of that square whose's area is 144 cm²

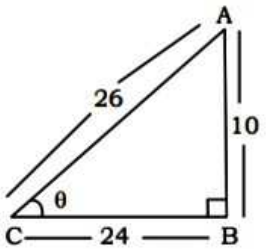
Side = 12 cm

Triangle's height = 12 cm

Ar of triangle = $\frac{1}{2} \times$ Base × height

$= \frac{1}{2} \times 24 \times 12 = 144 \text{ cm}^2$

43. (d)



Perimeter = 60 cm

AB + BC = 60 – 26 = 34 cm

By hit and trial –

One side = 24 cm

Second side = 10 cm

Area of triangle = $\frac{1}{2} \times 24 \times 10 = 120 \text{ cm}^2$

44. (a)

$r = 5 \text{ m}$

$= \pi(5.64^2 - 5^2)$

$= \frac{22}{7} \times 10.64 \times .64$

$= 22 \times 1.52 \times .64$

$\Rightarrow 21.4016 = 21 \text{ m}^2$

45. (c) Length of the rectangle = $3x$

Breadth of the rectangle = $3x \times \frac{2}{3} = 2x$

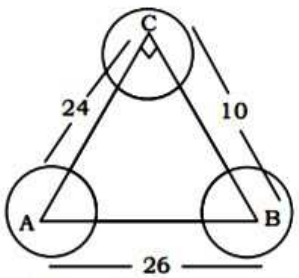
∵ $(3x + 2x) = 40$

$x = 8\text{m}$

Area of the rectangle $3x \times 2x = 6x^2$

$= 6 \times 64 = 384 \text{ m}^2$

46. (d)



Radias of each circle = 4.2 cm

∵ ΔABC is a right angle triangle

$26^2 = 24^2 + 10^2$

Total area of sectoriam circles –

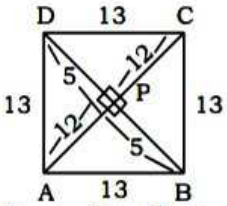
$= \frac{180°}{360°}\pi r^2$

[∵ A triangle is always 180°]

$= \frac{1}{2} \times \frac{22}{7} \times 4.2 \times 4.2$

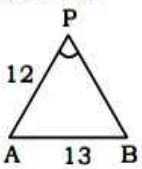
$= 27.72\ cm^2$

47. (c)



In a rhombus, two diagonals intersect each other on 90° in equal parts

In ΔAPB –



$PB = \sqrt{13^2 - 12^2} = 5$ cm

Area of a rhombous

$= \frac{1}{2} \times AC \times BD$

$= \frac{1}{2} \times 24 \times 10 = 120\ cm^2$

48. (b)

Side of square = a

diagonal = $a\sqrt{2}$

$a\sqrt{2} = 9\sqrt{2}$

a = 9 cm

Perimeter of square = 4 × 9 = 36 cm

Base of triangle = 36 cm

∵ Height of triangle is equal to side of that square whose's area is 144 cm^2

Side = 12 cm

Height of the triangle = 12 cm

Area of the triangle

$= \frac{1}{2} \times$ Base × height

$= \frac{1}{2} \times 36 \times 12 = 216\ cm^2$

49. (a)

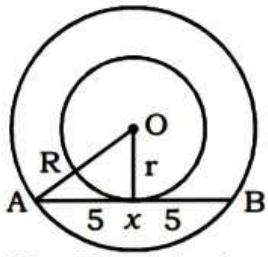
Each side of an equilateral Δ

= 12cm

Altitutde

$= \frac{\sqrt{3}a}{2} = \frac{\sqrt{3} \times 12}{2} = 6\sqrt{3}$ cm

50. (b)



AB = 10cm (given)

$AX = \frac{10}{2} = 5cm$

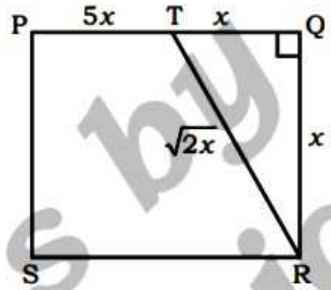
$R^2 = r^2 + 25$

Area of the annulus portion between two circle

$= \pi(R^2 - r^2)$

$= \pi(25) = 25\pi$

51. (a)



A.T.Q,

Given that,

PT : QT = 5 : 1

Area of Δ RTQ = $\frac{1}{2} \times x \times x = 12\sqrt{3}$

$\Rightarrow x^2 = 24\sqrt{3}$

Then,

Area of □PQRS = $6x \times x = 6x^2$

$= 6 \times 24\sqrt{3} = 144\sqrt{3}\ cm^2$

52. (c) Two parallel sides of a trapezium are 27cm and 13cm height = 8cm

Area = $\frac{1}{2}(a+b) \times h$

$= \frac{1}{2}(27+13) \times 8$

$= \frac{1}{2} \times 40 \times 8$ 160 $cm^2 = 0.016\ m^2$

53. (b) We know,

S (Semi perimeter) = $\frac{a+b+c}{2}$

Area of D = $\sqrt{S(S-a)(S-b)(S-c)}$

$S = \frac{60+112+164}{2} = \frac{336}{2} = 168$

Area of Δ

$= \sqrt{168(168-60)(168-112)(168-164)}$

$= \sqrt{168 \times 108 \times 56 \times 4}$

$= 2016\ m^2$

Cost of levelling the park = Rs. 8.5/m^2

Cost of levelling of 2016 m^2 of the park

= 2016 × 8.5 = 17136

54. (d) $2\pi r - 2r = 60$

$= 2r(\pi - 1) = 60$

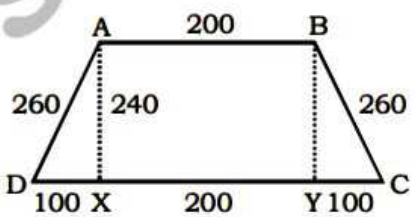
$= 2r\left(\frac{22}{7} - \frac{1}{1}\right) = 60$

= r = 14

Area of circle = $\pi r^2 = \frac{22}{7} \times 14 \times 14$

$= 616\ cm^2$

55. (c)



A.T.F

AX = 120 × 2 = 240

Then,

Area of trapazium = $\frac{1}{2} \times (600) \times 240 = 72000 m^2$

56. (c) Radius of park = $\frac{210}{2} = 105m$

Radius of park and path combine = (105 + 5) = 110

Area of path = $\pi(R^2 - r^2)$

$= \pi((110)^2 - (105)^2)$

$= \pi((110 + 105)(110 - 105))$

$= \pi \times 215 \times 5$

$= 1075\pi\ m^2$

57. (b) S = $\frac{(35+53+66)}{2} = 77$ m

Area of Δ = $\sqrt{S(S-a)(S-b)(S-c)}$

$= \sqrt{77 \times 42 \times 24 \times 11}$

$= 11 \times 7 \times 6 \times 2 = 924\ m^2$

Costing of leveling of 924 m^2 = 924 × 9.25 = Rs. 8547

58. (b) Total length of fencing = $\frac{2640}{12}$

= 220m

perimeter = 220

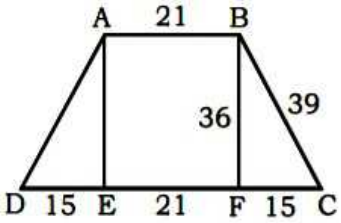
$2\pi r = 220$

$r = 35$

Area of circle $= r^2 = \frac{22}{7} \times 35 \times 35$

$= 3850$

59. (b)

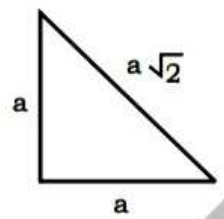


Area of trapezium $= \frac{1}{2}(a + b) \times h$

$= \frac{1}{2}(21 + 51) \times 36$

$= \frac{1}{2} \times 72 \times 36 = 1296\ cm^2$

60. (b) Given, Perimeter $= 16\sqrt{2} + 16$ cm



We know,

Perimeter of Iscoceles Δ

$= a\sqrt{2}(\sqrt{2} + 1)$

$\Rightarrow a\sqrt{2}(\sqrt{2} + 1) = 16\sqrt{2} + 16$

$\Rightarrow a = 8\sqrt{2}$

Area of triangle $= \frac{1}{2} \times a^2$

$= \frac{1}{2} \times 8\sqrt{2} \times 8\sqrt{2} = 64\ cm^2$

61. (a) Distance Covered = S × T

$= 72 \times \frac{100000}{60} \times \frac{33}{2}$

$= 1980000$ cm

Distance covered by wheel in 1 revolution $= \pi d = \frac{22}{7} \times 126 = 396$ cm

$\therefore$ Number of revolutions

$= \frac{1980000}{396} = 5000$ rev.

62. (c)

Diameter of circle = 77 cm

Circumference of circle = πd

$= \frac{22}{7} \times 77 = 242$ cm

We know, $142\% = \frac{71}{50}$

Let Rectangle's Breadth $= 50x$

Rectangle's Length $= 71x$

ATQ, Perimeter $= 2(l + b)$

$\Rightarrow 2(l + b) = 242$

$\Rightarrow 2(71x + 50x) = 242$

$\Rightarrow 121x = 121$

$\Rightarrow x = 1$

Area of rectangle $= l \times b$

$= 71x \times 50x = 71 \times 1 \times 50 \times 1$

$= 3550\ cm^2$

63. (d) Given, a = 120cm, b = 170cm, c = 250cm.

We know,

$S = \frac{a + b + c}{2} = \frac{120 + 1740 + 250}{2}$

$= 270$ m

$ar\Delta = \sqrt{S(S-a)(S-b)(S-c)}$

$= \sqrt{270 \times 150 \times 100 \times 20}$

$= 9000\ m^2$

Costing of levelling the field at the rate of Rs $7.40/m^2$

$= 9000 \times 7.40$

= Rs. 66600

64. (a)

L	B	H
$6x$	$3x$	$2x$

Cost of painting its four wall at the rate of Rs $25/m^2$ is Rs 3600

$= 2(l + b) \times h \times 25 = 3600$

$= 2 \times 9x \times 2x \times 25 = 3600$

$= x = 2$

$l = 6 \times 2 = 12$ m

$b = 3 \times 2 = 6$ m

Cost of laying a carpet on its floor at the rate of Rs. $90.50/m^2$

= (Area of floor) × 90.50

$= 72 \times 90.50$ = Rs. 6516

65. (d) Surface area $= 4\pi r^2$

New Radius = r + 5

ATQ, $4\pi(r + 5)^2 - 4\pi r^2 = 704$

$\Rightarrow 4\pi[(r + 5)^2 - r^2] = 704$

$\Rightarrow 4 \times \frac{22}{7}[r^2 + 25 + 10r - r^2] = 704$

$\Rightarrow 25 + 10r = 704 \times \frac{7}{22} \times \frac{1}{4}$

$\Rightarrow 25 + 10r = 56$

$\Rightarrow 10r = 56 - 25 = 31$

$\Rightarrow r = 3.1$

Diameter $= 2 \times 3.1 = 6.2$ cm

66. (a) Ratio of side of $\Delta = 12x : 17x : 25x$

Perimeter of the triangle = 1080

$\Rightarrow 12x + 17x + 25x = 1080$

$\Rightarrow 54x = 1080$

$\Rightarrow x = 20$

Sides of the triangle are

$12 \times 20 = 240$

$17 \times 20 = 340$

$25 \times 20 = 500$

$S = \frac{(240 + 340 + 500)}{2} = \frac{1080}{2}$

$= 540$

Area of triangle

$= \sqrt{S(S-a)(S-b)(S-c)}$

$= \sqrt{540 \times 300 \times 200 \times 40}$

$= 36000\ m^2$

$10000\ m^2 = 1$ Hectares

$36000\ m^2 = 3.6$ hectares

67. (a) Radius of circular region $= \frac{d}{2}$

Width of path = x m

External radius of path (R)

$= \frac{d}{2} + x$

Area of path $= \pi(R^2 - r^2)$

$= \pi\left[\left(\frac{d}{2} + x\right)^2 - \left(\frac{d}{2}\right)^2\right]$

$= \left[\frac{d^2}{4} + x^2 + dx - \frac{d^2}{4}\right] = \pi[x^2 + dx]$

$= \pi x(x + d)\ m^2$