ANSWERS

SECTION A

1.(a) $\pm 2\sqrt{6}$

2.(b) $\sqrt{50}$

3.(d) 45^0

4.(c) $\frac{1}{2}$

5. (b) (2,0)

6. (d) 3:1:2

7.(d) 30^0

8.(a) 4

SECTION B

9. $x^2 - 3x + 1 = 0$

$x = \frac{3 \pm \sqrt{5}}{2}$

10. $a_n = a + (n-1)\, d$

$a = -62$, $n = 11$, $d = 3$

$a_{11} = -32$

11.AR = AQ

AR = x – 6

AQ = 8
x = 14

12.Let the ratio be k : 1

$$\frac{-k+5}{k+1} = 0$$

k = 5

The ratio is 5:1

13.Perimeter $= \pi r + d$
= 36cm

14.Surface area of the cuboid = 2(lb + bh + hl)
l = 8cm b = 4 cm , h = 4 cm
Surface area = 160cm^2

SECTION C

15.a_1= 7 ,a_2 =11 ,d =4
s_{25} = 1375

16 x^2- 6x- 2700= 0
x = 90
shorter side = 90m
longer side = 120 m

17. $25x^2$ -30x -10 = 0
$(5x)^2$ - 2 (5x) (3) + $(3)^2$ –$(3)^2$ -10 = 0
x = $\frac{3 \pm \sqrt{19}}{5}$

18. Construct the triangle with the given measurements.

19. Given:
To prove:
Proof.

20.(a) $\frac{4}{7}$
(b) Bicycle
(c) It will help to save fuel

21. (a) 100 ($\sqrt{3}$ - 1) m
(b) (i) No, he has not finished according to the terms of the contract.(ii) Honesty.

22. Let ‘n’ be the number of cylindrical bottles

$\frac{2}{3}\pi$ r^3 = n π R^2h

n = 72.

OR

π $r^2 h$ = l b H

h = 2.5 m

23.length of each side = $\sqrt{26}cm$
ABCD is a rhombus
AC $\neq$ BD
ABCD is not a square.

24.h = 31cm – 7cm
= 24cm
Slant height = $\sqrt{r^2 + h^2}$

= 25cm

Surface area $= \pi$ r l $+2\ \pi$ r ^{2}

$= 858$ cm^2

SECTION D

25. $\frac{360}{x} - \frac{360}{x+5} = 1$

x ^{2} +5 x - 1800 = 0

Speed of the train = 40 kmph

OR

$4x^2 - 115x + 375 = 0$

Time taken by the first tap = 25 hours

Time taken by the second tap = 15 hours.

26. Given

To prove

Proof

27. ar(ΔABC) $= \sqrt{s(s-a)(s-b)(s-c)}$ --------(1)

ar(ΔABC) = ar(ΔOBC)+ ar(ΔOAB) + ar(ΔOCA) -----(2)

From (1) and (2) , AC = 13 cm , AB= 15 cm.

28.Area of the design = area of the circle – area of triangle ABC

$= \left(\frac{22528}{7} - 768\sqrt{3}\right)$ cm^2

29.Height of the multistoried building $= 4(3 + \sqrt{3})$ m

Distance between the two buildings $= 4(3 + \sqrt{3})$ m

30. (a) $\frac{1}{10}$ (b) $\frac{9}{10}$ (c) $\frac{1}{5}$ (d) 0

31.Co ordinates of the midpoint of AC

= Co ordinates of the midpoint of BD

p = 7

32. $Volume = \frac{1}{3} \pi h (r1^2 + r2^2 + r1 r2)$

$= \frac{10449.92}{1000}$ litre

Cost of milk = Rs. 209.

OR

No of cones filled with ice cream = $\frac{volume\ of\ cylinder}{volume\ of\ ice\ cream\ cone}$

= 10.

33.The A P is $\frac{\pi}{2}$, π , $\frac{3\pi}{2}$, 2π , ….

$S_{13} = 143$

Total length of the spiral = 143cm

34.(a) Apparent capacity of the glass = π $r^2 h$

= 196.25 cm^3

Volume of the hemisphere = 32.71 cm^3

Actual capacity of the glass = apparent capacity -Volume of the hemisphere

= 163.54 cm^3

(b) No , He is lacking in honesty.
