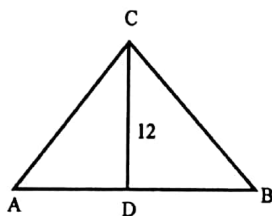


SSLC Model Evaluation - 2020

KP (G)
Std. 10

Mathematics
(Answer Key)

- 94
- D is on the circle and B is an interior point
- $AB = 10 + 4 = 14\text{cm}$
 $AD = 4\sqrt{3}\text{cm}$
- (a) $r = 5$ unit (b) $(0,5); (0, -5)$
- 576 sq.cm.
- a. +3
b. $\frac{a-3}{2-1} = +3$ $a = 6$
- Mean = 17.6, median = 15
- $2x^2 - 5x + 2 = (2x-1)(x-2)$
- a. $\frac{3}{8}n + 1$ (b) 4
- The circle touches BC at P. $BP = x$, $CP = y$
The circle touches AB at Q, AC at R.
 $AQ = AR$
 $BQ = x$ and $CR = y$ $AB = AC \Rightarrow$
 $AQ + x = AR + y \Rightarrow x = y$
- a. Slant height = $\sqrt{12^2 - 6^2} = \sqrt{144 - 36}$
 $\sqrt{108} = 6\sqrt{3}$
height = $\sqrt{108 - 6^2} = \sqrt{72} = 6\sqrt{2}$
b. $12 : 6\sqrt{2} : 6\sqrt{3} = 2 : \sqrt{2} : \sqrt{3}$
- $n(4n+3) = 280 \Rightarrow 4n^2 + 3n = 280 \Rightarrow n=8$
- a. 120
b. $7 \times 120 + 3 \times 15 = 885$
- $\angle ABC = 180 - [\angle BAC + \angle BCA]$
 $\angle ABC = 180 - \frac{1}{2} \angle AOC$
 $\therefore \frac{1}{2} \angle AOC = \angle BAC + \angle BCA;$
 $\therefore \angle AOC = 2 [\angle BAC + \angle BCA]$
- a. $\frac{20}{500}$
b. $\frac{130}{500}$
c. $\frac{72}{500}$
d. $\frac{20}{500}$
- $\tan A = 12/AD = 3/4$
 $\Rightarrow AD = 16$
 $\tan B = 12/BD = 4/3$
 $\Rightarrow BD = 9$
 $AB = 25\text{cm}$
Area of $\triangle ABC = \frac{1}{2} \times 25 \times 12 = 150 \text{ sq.cm.}$
 $AC = 20\text{cm}$, $BC = 15\text{cm}$, $AB^2 = AC^2 + BC^2$
- Sides are $x, 2x, 2x + 2$
 $(x+1)^2 + (2x+1)^2 = (2x+3)^2 \Rightarrow x = 7\text{cm}$
- Construction
- a. $P(x) - P(r) = (ax^2 + bx + c) - (ar^2 + br + c)$
 $= a(x^2 - r^2) + b(x-r)$
 $= (x-r)[a(x+r) + b]$



- $x = \frac{-4 \pm \sqrt{8}}{2} = -2 \pm \sqrt{2}$, $x = -2 - \sqrt{2}$, $-2 + \sqrt{2}$
 - $x^2 - 4x + 2 = (x+2 + \sqrt{2})(x+2 - \sqrt{2})$
 - a. 31 b. 600-800
 - 605
 - median = 11th term of 605, 615, 625,
 $= 605 + 10 \times 10 = 705$
 - a. $y = 3$, $x = 4$ (4, 3) b. $r = 5$, $x^2 + y^2 = 25$
 - $x_6 = \frac{275}{11} = 25$, $x_{16} = \frac{585}{9} = 65$
 - d. $d = 40/10 = 4$, $f = 25 = 5 \times 4 = 5$
 - $xn = 4n + 1$
 - Construction
 - $\tan 65 = h/x \Rightarrow h = x \tan 65$
 $\tan 70 = h+8/x$
 $\Rightarrow h + 8 = x \tan 70$
 $x \tan 65 + 8 = x \tan 70$
 $x = \frac{8}{\tan 70 - \tan 65}$, $h = \frac{8 \tan 65}{\tan 70 - \tan 65}$
 $h = \frac{8 \tan 65}{2.75 - 2.14} = 28.06$
 $H = 28.06 + 1.5 = 29.56\text{m}$
-
- a. $0(2, -2)$
 - $r = 5$ unit $OC = 5$ unit
C is a point on the circle
 $\therefore \angle ACB = 90^\circ$, $\triangle ABC$ is right triangle
 - $AC = \sqrt{2}$, $BC = 7\sqrt{2}$, $AB = 10$
Perimeter = $10 + 8\sqrt{2}$ unit
 - Construction
 - $(23-r)^2 + r^2 = 17^2$ $r = 8$ unit or $r = 15$ unit
If $r = 8$, $V = \frac{1}{3} \pi r^2 h + \frac{2}{3} \pi r^3$
 $= \frac{1}{3} \pi \times 8^2 \times 15 + \frac{2}{3} \pi \times 8^3$
If $r = 15$, $V = \frac{1}{3} \pi \times 15 \times 15 \times 15 + \frac{2}{3} \pi \times 15^3$
 $= \frac{1}{3} \pi \times 15 \times 15 \times 15 + \frac{2}{3} \pi \times 15^3$
 - a. (5, 6)
b. $\sqrt{5^2 + 6^2 - 24} = \sqrt{37}$
c. at x axis $x^2 - 10x + 24 = 0$
(6, 0) and (4, 0)
at y - axis : $y^2 - 12y + 24 = 0$
 $y = \sqrt{48} = 4\sqrt{3}$
(0, $4\sqrt{3}$), (0, $-4\sqrt{3}$)
 - a. 2, 4, 1
b. 1, 4, 2, 2, 4, 1, 0,
c. 3, 5, 6
d. 3
e. No
f. $7n + 5$, $7n + 6$