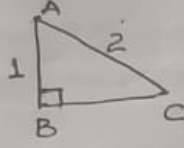


ANNUAL EVALUATION 2019-20
 MATHS - IX - ANSWER KEY BY REGHU S
 GTHS KRISHNAPURAM.

1. Average = $\frac{\text{Sum}}{\text{No}}$
 $= \frac{390}{10}$
 $= \underline{39}$

2. a) $a(x) = 50x - x^2$ | b) $a(40) = 40 \times 10$
 $= x(50 - x)$ | $= \underline{400}$
 a) $a(0) = 10 \times 40$
 $= \underline{400}$

3. a) $BC = \sqrt{2^2 - 1^2}$
 $= \underline{\sqrt{3} \text{ cm}}$



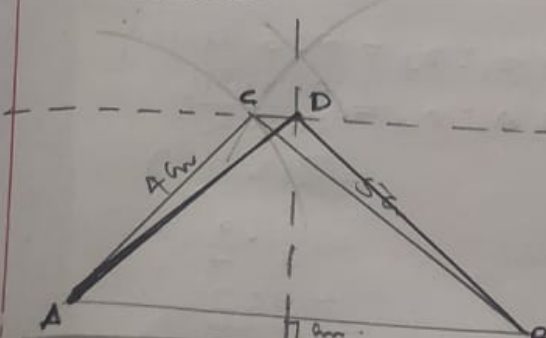
b) Perimeter = $3 + \sqrt{3} \text{ cm}$

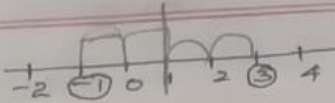
4. a) 0.234
 b) $\frac{125}{1000} = \frac{1}{8}$

5. a) $V = l \times b \times h$
 $= 4 \times 3 \times 8$
 $= \underline{96 \text{ cm}^3}$
 b) Given rt. Δ gulms prism.
 Base area = $\frac{1}{2} bh$
 $= \frac{1}{2} \times 3 \times 4$
 $= \underline{6 \text{ cm}^2}$
 $V = A \times h$
 $= 6 \times 8$
 $= \underline{48 \text{ cm}^3}$

10) Given $r_1 : r_2 = 2 : 3$, $h_1 = h_2$
 a) $3r$
 b) $V_1 : V_2 = \frac{\pi r_1^2 h_1}{\pi r_2^2 h_2}$
 $V_1 : V_2 = \left(\frac{r_1}{r_2}\right)^2 = \left(\frac{2}{3}\right)^2 = \frac{4}{9}$
 $V_1 : V_2 = 4 : 9$

6. ΔABC is the given Δ .
 ΔABD is the Δ having the same area.



7) a) 
 No. s = -1 and 3

b) $|x-1| = 3$ | $x-1 = 3$ | $x-1 = -3$
 $\therefore x-1 = \pm 3$ | $\therefore x = 3+1$ | $x = -3+1$
 $= \underline{4}$ | $= \underline{-2}$

Values of x are 4 and -2.

8) a) $P = 2\pi r$

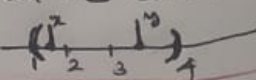
b) yes, proportionality constant

9) Total sum = Average \times No.
 $= 80 \times 7$
 $= \underline{560}$

a) Sum = $560 - 330$

b) $\frac{73}{1}, \frac{78}{1}, \frac{79}{1}, \frac{81}{1}, \frac{82}{1}, \frac{83}{1}, \frac{84}{1}$

11) a) Distance = $|4-1| = |3| = \underline{3}$.

b) Since x and y are two no.s b/w 1 and 4, so the distance b/w them should be less than 3.
 $\therefore |x-y| < 3$. 

12) Given $r = 8 \text{ cm}$, $h = 15 \text{ cm}$

a) $V = \pi r^2 h$
 $= \pi \times 8 \times 8 \times 15$
 $= \underline{960\pi \text{ cm}^3}$

12. b) No. of cylinders = $\frac{\text{Vol. of given cylinder}}{\text{Vol. of one new cylinder}}$

$$= \frac{\pi R^2 H}{\pi r^2 h}$$

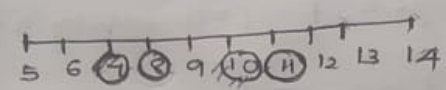
$$= \frac{8 \times 8 \times 15}{4 \times 4 \times 30}$$

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

$$= \underline{2}$$

b) Solving (a) we get
 Cost of 1 table = 4000/-
 Cost of 1 chair = 1000/-

13. a) AP: PQ: QR = 1:1:1
 b) fig.

14. a) 6, 7, 8, 9, 10, 11, 12, 13
 b) $|x-5| + |x-14| = 9$
 c) 
 No. same 8, 11, 8, 14.

15. a) S.A = $4\pi r^2 = 64\pi$
 b) S.A = $4\pi r^2 = 4\pi r^2$
 c) Here surface area and square of radius are in proportion & the proportionality constant is 4π

16. a) Base area = $\pi r^2 = \pi \times 5^2 = 25\pi \text{ cm}^2$
 C.S.A = $2\pi rh = 2\pi \times 5 \times 5 = 50\pi \text{ cm}^2$
 b) $\frac{\text{Base area}}{\text{C.S.A}} = \frac{25\pi}{50\pi} = \frac{1}{2}$
 Ratio = 1:2
 c) Given $\pi r^2 = 50\pi \therefore r = 5\sqrt{2} \text{ cm}$
 $\therefore h = 2 \times 5\sqrt{2} = 10\sqrt{2} \text{ cm}$
 $\therefore \text{C.S.A} = 2\pi rh = 2\pi \times 5\sqrt{2} \times 10\sqrt{2} = 200\pi \text{ cm}^2$

17. a) Let the cost of 1 table = x &
 1 chair = y
 $\therefore 2x + y = 9000, x + 4y = 8000$

18. a) $A = \frac{1}{2} b h$
 $120 = \frac{1}{2} \times 24 \times h \therefore h = \underline{10 \text{ cm}}$
 b) $120 = \frac{1}{2} \times 12 \times h \therefore h = \underline{20 \text{ cm}}$
 c) $\frac{1}{2} b_1 h_1 = \frac{1}{2} b_2 h_2$
 $\therefore \frac{b_1}{b_2} = \frac{h_2}{h_1}$
 d) No, when length of side increases \perp^r distance decreases, here side and \perp^r distance are in inverse proportion.

19. a) If $|x| = 1$, then $x = +1, -1$
 b) If $|x| < 1$, $x = 0$
 c) $|x| > 1$, then smallest value of x is 2

20. a) 120°
 b) Area of shaded region
 = Area of Large Sector - Area of Small Sector
 $= \pi R^2 \times \frac{x}{360} - \pi r^2 \times \frac{x}{360}$
 $= \pi \times \frac{x}{360} (R^2 - r^2)$
 $= \pi \times \frac{120}{360} (4+3)(4-3)$
 $= \pi \times \frac{1}{3} \times 1 \times 1$
 $= \underline{\underline{\frac{7\pi}{3} \text{ cm}^2}}$

21. a) $r_1 : r_2 = 2 : 3$ itself.
 b) $A_1 : A_2 = \frac{\pi r_1 h_1}{\pi r_2 h_2} = \left(\frac{r_1}{r_2}\right) \cdot \left(\frac{h_1}{h_2}\right) = \frac{2}{3} \cdot \frac{9}{4} = \underline{\underline{3:2}}$

$$\frac{300}{A_2} = \frac{3}{2} \therefore A_2 = \underline{\underline{200 \text{ cm}^2}}$$

a) $BD = 2 \text{ cm}$ b) $OD = 4 - r$

c) From rt ΔOBD , $OB^2 = OD^2 + BD^2$

$$r^2 = (4-r)^2 + (2)^2, \text{ by solving}$$

$$8r = 20 \therefore r = \underline{\underline{2.5 \text{ cm}}}$$

d) $P = 2\pi r$
 $= 2\pi \times 2.5$
 $= \underline{\underline{5\pi \text{ cm}}}$

3. fig

Hex $OD:BD:OB = 1:\sqrt{3}:2$

$$\therefore r = \frac{6}{\sqrt{3}}$$

$$= \frac{6\sqrt{3}}{3}$$

$$= \underline{\underline{2\sqrt{3} \text{ cm}}}$$

$r = 3.5 \text{ cm}$

24.

a) $PQ = 2 \times AB = 2 \times 2 = 4 \text{ cm}$

$QR = 2 \times BC = 2 \times 5 = 10 \text{ cm}$

$PR = 2 \times AC = 2 \times 4 = \underline{\underline{8 \text{ cm}}}$

b) fig.

25.

a) $V = a^3$
 $= 10 \times 10 \times 10$
 $= \underline{\underline{1000 \text{ cm}^3}}$

b) Vol. of misc in water = Vol. of immersed cube

$$20 \times 20 \times h = 10 \times 10 \times 10$$

$$\therefore h = 2.5 \text{ cm.}$$

Total ht. of sq. prism is 21 cm and it has water upto 20 cm

\therefore ht of $2.5 - 1 = 1.5 \text{ cm}$ water overflow. That vol. is

$$V = 20 \times 20 \times 1.5 = \underline{\underline{600 \text{ cm}^3}}$$

30-34	40	32	1280
34-38	70	36	2520
38-42	40	40	1600
42-46	30	44	1320
46-50	20	48	960
TOTAL	200		7680

a) 34-38

b) mean = $\frac{\text{Sum}}{\text{No.}}$
 $= \frac{7680}{200}$
 $= \underline{\underline{38.4 \text{ Kg}}}$

27.

a) $b = \frac{Area}{l}$
 $= \frac{100}{20}$
 $= \underline{\underline{5 \text{ cm}}}$

b) $x \times y = 100$

Here length and breadth are in inverse proportion

28.

x	$-x$	$ x $	x^2	$ x ^2$
5	-5	5	25	25
-2	+2	2	4	4

b) Any -ve no. say $x = -2$

c) If $x \geq 0$, then $|x| = x$, then squaring on both sides, we get $|x|^2 = x^2$

If $x < 0$, then $|x| = -x$, then squaring on both sides

$$|x|^2 = (-x)^2 = x^2$$

$$\therefore |x|^2 = x^2, \forall x.$$

29. a) 99 b) 50 c) $50^2 = 2500$ d) 99
e) n f) n^2 .