ANSWER KEY - Maths - ANNUAL EXAM - 2020

Class : 9

1. ശരാശരി = $\frac{390}{10}$

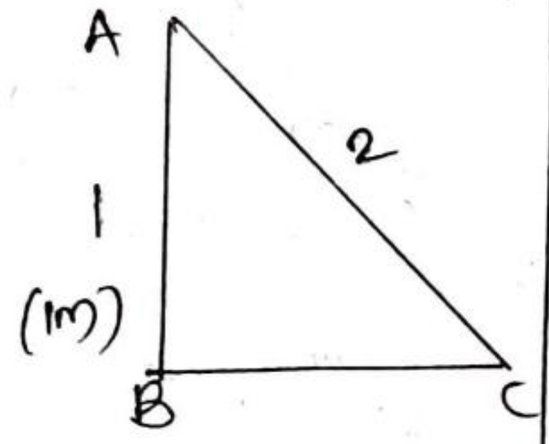
$= \underline{\underline{39}}$ 2m.

2. $a(x) = 500 - x^2$

$a(10) = 500 - 100 = 400$ (1m)

$a(40) = 2000 - 1600 = 400$ (1m)

3 (a)



$BC = \sqrt{4-1}$

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

(b) ചുറ്റളവ് = $\underline{\underline{3+\sqrt{3}}}$ cm (1m)

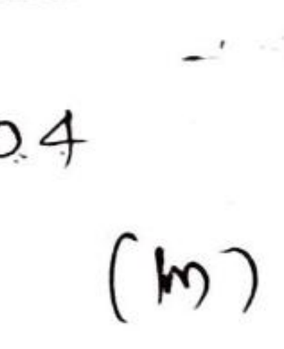
Perimeter

4 (a) $\cdot 2 + \cdot 03 + \cdot 004$

$= \underline{\underline{\cdot 234}}$ (1m)

(b) $\cdot 125 = \frac{125}{1000} = \underline{\underline{\frac{1}{8}}}$ (1m)

5 (a)



വ്യാപ്തം

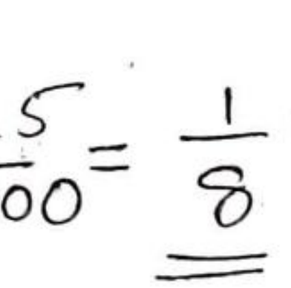
Volum $= 4 \times 3 \times 8$

$= 96\ cm^3$

(2m)

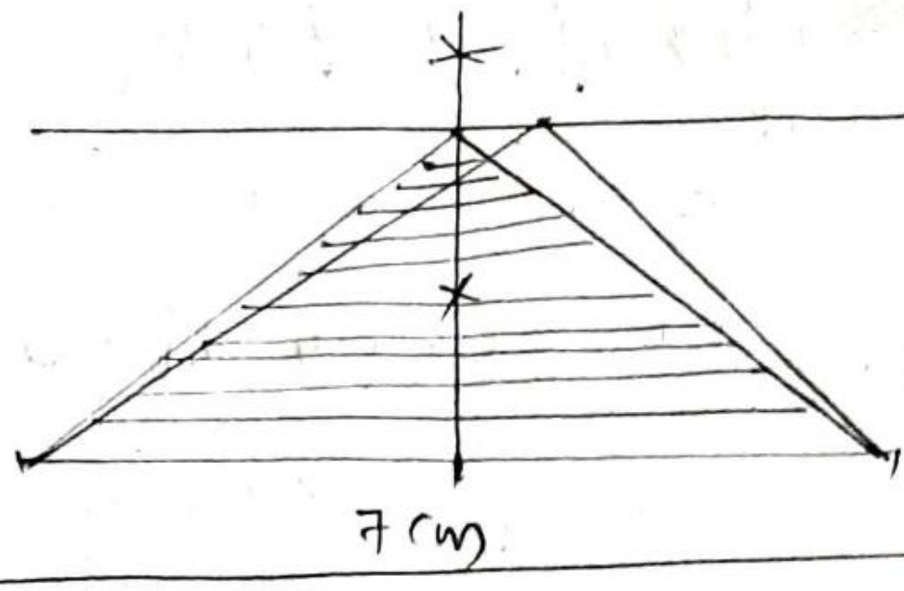
(b) $V = \frac{96}{2}$

$= \underline{\underline{48\ cm^3}}$



(1m)

6.



(3m

7 (a) $-1, 3$ (1m)

(b) $|x-1| = 3$

$x - 1 = 3$

$\underline{\underline{x = 4}}$

$x - 1 = -3$

$x = -3 + 1$

$\underline{\underline{x = -2}}$

(2m)

8 (a) $P = 2\pi r$ (1m)

(b) ~~Ans~~ Yes,

constant of proportionality $= \underline{\underline{2\pi}}$ (2m)

9. (a) $560 - 330 = 230$ (1m)

(b) 77, 78, 79, 80, 81, 82, 83

(2m)

10 (a) $r_1 : r_2 = 2 : 3$

$\underline{\underline{3r}}$ (1m)

(b) $\frac{V_1}{V_2} = \frac{\pi r_1^2 k}{\pi r_2^2 k}$

$= \frac{4r^2}{9r^2} = \frac{4}{9}$

$V_1 : V_2 = 4 : 9$ (2m)

11 (a) $d = 4-1 = \underline{3}$ (1m)

(b) If $1<x<4$, $1<y<4$

If $x=4 \quad y=1$

$|x-y| = |4-1| = 3$

$x=1 \quad y=4$

$|x-y| = |1-4| = |-3| = 3$

Hence the proof (2m)

12. (a) $r = 8$ cm

$h = 15$ cm

$V = \pi r^2 h$

$= \pi \times 8 \times 8 \times 15$

$= 960\pi \text{cm}^3$ (2m)

(b) $r = 4$

$h = 30$

$V = \pi \times 4 \times 4 \times 30$

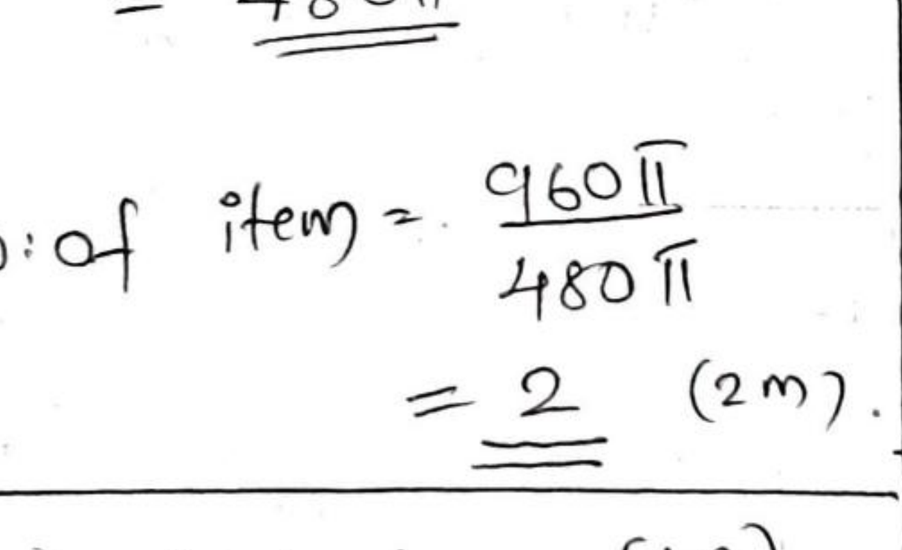
$= \underline{480\pi}$

no: of item $= \frac{960\pi}{480\pi}$

$= \underline{2}$ (2m).

13 (a) 1 : 1 : 1 (1m)

(b)



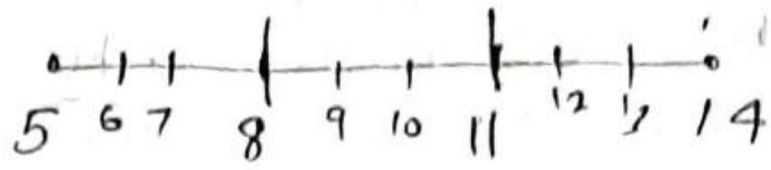
(3m)

14 $5 < x < 14$

(a) 6, 7, 8, 9, 10, 11, 12, 13 (1m)

(b) 9 (1m)

(c)



~~coordinates~~ points = 8, 11 (2m)

15 (a) $4\pi \times 4^2 = 64\pi$ (1m)

(b) $4\pi r^2$ (1m)

(c) r is not proportional to T.S.A

but r^2 is proportional to T.S.A

Constant of proportionality $= \underline{4\pi}$ (2m)

16 (a). B.A $= \pi 5^2 = 25\pi \text{ cm}^2$

C.S.A $= 2\pi r \times h$

$= 2\pi \times 5 \times 5 = 50\pi \text{ cm}^2$ (1m)

(b) B.A : C.S.A = 1 : 2 (1m)

(C) $A \times 50\pi = 200\pi$ cm (2m)

17 $2x + y = 9000$ — (1) (1m)

$x + 4y = 8000$ — (2) (1m)

(2) $\times 2 \Rightarrow 2x + 8y = 16000$

$- \quad 2x + y = 9000$

$7y = 7000$

$y = \underline{1000}$ (1m)

$x = \underline{4000}$ (1m)

Table = 4000 ₹ Chair = 1000 ₹

18 (a) $h = \frac{120}{24} = 5$ cm (1m)

(b) 10 cm (1m)

(c) base $= x$
ht $= y$

$A = \frac{1}{2}xy$

$xy = 2A$ (1m)

(d) Yes, Inverse proportion (1m)

19 (a) $-1, 1$ (2m)

(b) 0 (1m)

(c) 1 (1m)

20. (a) 120 (1m)

(b) area of small sector $= \frac{1}{3} \times \pi \times 3 \times 3$

$= \underline{3\pi}$ (1m)

area of large sector $= \frac{1}{3} \pi \times 4 \times 4$

$= \frac{16\pi}{3}$ (1m)

area of shaded part $= \frac{16\pi}{3} - 3\pi$

(1m)

21 (a) 2 : 3 — (1m)

(b) 3 : 2 — (1m)

(c) $\frac{100}{300} \times \frac{2}{3} = \underline{200}$ (2m)

22 ~~(a) OA = 4 cm~~

~~(b) OD = $\sqrt{5^2 - 4^2}$~~

~~(c) $\frac{1}{2} \times 4 \times 3$~~

22 (a) BD = 2 cm (1m)

(b) OD = $4 - r$ (1m)

(c) $r^2 = 2^2 + (4-r)^2$

$r^2 = 4 + 16 - 8r + r^2$

$\therefore r = \underline{2.5}$ (2m)

(d) $P = 2\pi r = \underline{5\pi \text{ cm}}$ (1m)

23 Construction → Circum circle

24 (a) PQ = 4 cm
PR = 8 cm
QR = 10 cm

(b) Construction

25 (a) Volume $= 10^3 = 1000 \text{ cm}^3$

(b) $20 \times 20 \times 21 - 20 \times 20 \times 20$

$= 400 \text{ cm}^3$

Vol of Over flow $= 1000 - 400 \text{ cm}^3$

$= 600 \text{ cm}^3$

26 (a) 34 - 38

Wt	No: of	Sum
32	40	1280
36	70	2520
40	40	1600
44	30	1320
48	20	960
	200	7680

Mean $= \frac{7680}{200} = \underline{38.4}$

27 (a) $b = 5$ cm

(b) $l = x \quad b = y$

$xy = 100$

(c) Inverse proportion

28 (a)

x	$-x$	$\lvert x \rvert$	x^2	$\lvert x \rvert^2$
5	-5	5	25	25
-2	2	2	4	4

(b) -2

(c) <u>when $x = 0$</u>

$|0|^2 = 0^2 = 0$

<u>when $x > 0$</u>

$|x|^2 = x^2$

when $x < 0$

$|-x|^2 = |x|^2$

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

$|x|^2 = x^2$

Hence the proof

29 1. 99

2 50

3. $50^2 = 2500$

4. 99

5. n

6. n^2

SHAMEEM FARHATH · MA
CHSS ADAKKAKUND
MALAPPURAM (DIST)