SSC MAINS (MATH) MOCK TEST - 4 (SOLUTION)

1. (D) Total no. of marbles kept in 50th box
= sum of factors fo 50
= 1 + 2 + 5 + 10 + 25 + 50
= 93

2. (C) Let x be the required number
and a be its first part
so, $(x - a)$ will be its second part
Now, A.T.Q,
$0.8a = 0.6(x - a) + 3$
or, $0.8a + 0.6a = 0.6x + 3$
or, $1.4a = 0.6x + 3$

$$\Rightarrow a = \frac{0.6x + 3}{1.4} \quad \text{_____(i)}$$

also
$0.9a + 6 = 0.8(x - a)$
or, $0.9a + 0.8a = 0.8x - 6$
or, $1.7a = 0.8x - 6$

$$\Rightarrow a = \frac{0.8x - 6}{1.7} \quad \text{---------- (ii)}$$

from (i) & (ii) ,

$$\frac{0.6x + 3}{1.4} = \frac{0.8x - 6}{1.7}$$

$$\Rightarrow 1.02x + 5.1 = 1.12x - 8.4$$

$$\Rightarrow 0.1x = 13.5$$

$$\Rightarrow x = \frac{13.5}{0.1} = 135$$

Alternative method

$$\frac{4}{5}a = \frac{3}{5}(x - a) + 3$$

$$\Rightarrow \left(\frac{4}{5} + \frac{3}{5}\right)a = \frac{3}{5}a + 3 \quad \text{--------(i)}$$

also $\frac{9}{10}a + 6 = \frac{4}{5}(x - a)$

$$\Rightarrow \left(\frac{9}{10} + \frac{4}{5}\right)a = \frac{4}{5}x - 6 \quad \text{--------(ii)}$$

from (i) & (ii), we get,

$$\left(\frac{3}{5}x + 3\right) \times \left(\frac{9 + 8}{10}\right) = \left(\frac{4}{5}x - 6\right) \times \left(\frac{4 + 3}{5}\right)$$

or, $\frac{51}{50}x + \frac{51}{10} = \frac{28}{25}x - \frac{42}{5}$

or, $\left(\frac{56}{50} - \frac{51}{50}\right)x = \frac{51}{10} + \frac{42}{5}$

$$\Rightarrow x = \frac{135}{10} \times \frac{50}{5}$$

$x = 135$

3. (A) Let the two digit number be $10y + x$ where $x > y$
$\therefore 10x + y - 10y - x = 63$
$\Rightarrow 9x - 9y = 63$
$\Rightarrow x - y = 7$
$\therefore x = 7, 8, 9$ and $y = 0, 1, 2$
$\Rightarrow$ possible values of x are 7,8,9

4. (A) For every $n \geq 4$;
n! will be divisible by 8
$\Rightarrow$ remainder will be zero
[because for $n \geq 4$, 8 will be a factor of n!]
So, remainder of 1! + 2! + 3! + 4! + ... + 100!
wil be equal to the remainder of 1! + 2! + 3!
only
1! + 2! + 3! = 1 + 2 + 3 = 9

and $\frac{9}{8}$; R = 1

5. (D) H.C.F. = x and L.C.M. = y
$\Rightarrow A \times B = x \times y$
So, $A^3 + B^3 = (A + B)^3 - 3AB(A + B)$
$= (x + y)^3 - 3xy(x + y)$
$= x^3 + y^3 + 3xy(x + y) - 3xy(x + y)$
$= x^3 + y^3$

6. (A) $(x)^{\frac{1}{2}} = (y)^{\frac{1}{3}} \Rightarrow (x)^{\frac{1}{1/3}} = (y)^{\frac{1}{1/2}} \Rightarrow (x)^3 = (y)^2$

7. (C) Required average age of 2 persons

$$= \frac{30 + 34 + (8 \times 3)}{2} = 44 \text{ yrs.}$$

8. (*) Required average age just before the birth of the youngest member

$$= \frac{(10 \times 20) - (10 \times 10)}{10 - 1}$$

$$= \frac{100}{9} = 11.11 \text{ yrs.}$$

9.(C) Weight of first member = x kg
Weight of second member = $(x + 2)$

Weight of fifth member = $(x + 8)$ kg

10. (A) Average speed = $\frac{\text{Total distance covered}}{\text{Total time taken}}$

$$= \frac{(6 + 8 + 40)\text{km}}{(15 + 15 + 15)\text{min}}$$

$$= \frac{54 \text{ km}}{45 \text{ min}} = \frac{54 \text{ km}}{\frac{45}{60} \text{ hr.}}$$

$= 72$ km/hr.

11. (C) Age of the captain
$= (11 \times 30) - \{(5 \times 29) + (5 \times 27)\}$
$= (330 - 280)$ yrs.
$= 50$ yrs.

12.(B) $(2m + 4b) \times 10 = (4m + 5b) \times 6$
$\Rightarrow 20m + 40b = 24m + 30b$
$\Rightarrow 4m = 10b \Rightarrow 2m = 5b$
So, $5b = 2 \times 40$

$$\Rightarrow b = \frac{2 \times 40}{5} = 16$$

$\therefore$ Required ratio = 40 : 16 = 5 : 2

13.(B) **In case I.**
Let the number of shirts of brand B be x.
Let the cost of a shirt of brand B be ` 1
$\therefore$ Original cost = $4 \times 2 + x =$ ` $(8 + x)$
In case II.

$$4x + 2x = (8 + x) \times \frac{140}{100} = (8 + x)\frac{7}{5}$$

$\Rightarrow 20 + 10x = 56 + 7x$
$\Rightarrow 10x - 7x = 56 - 20 = 36$
$\Rightarrow 3x = 36 \Rightarrow x = 12$
$\therefore$ Required ratio = 4 : 12 = 1 : 3

14. (C) Half the sum = 18
$\Rightarrow$ total sum = 36
$\Rightarrow$ Nos. will be 6, 12 and 18
So, ratio of squares = $6^2 : 12^2 : 18^2$
$= 36 : 144 : 324$

15. (B) A.T.Q,

$$\frac{A}{6} = \frac{J}{4} = \frac{2}{5}R$$

$\Rightarrow$ A : J : R

$$= 6 : 4 : \frac{5}{2}$$

$= 12 : 8 : 5$
$\Rightarrow$ Apoorva's share

$$= \frac{12}{(12 + 8 + 5)} \times 2250$$

= Rs. 1080

16. (A) S.P. at 20% profit = Rs. 9/litre

$$\Rightarrow \text{Cost of mixture} = \frac{9}{120} \times 100 = \text{Rs. } 7.5/\text{litre}$$

Now, let the ratio of milk and water in the mixture = $x : y$

$$\Rightarrow \frac{(10 \times x) + (0 \times y)}{x + y} = 7.5$$

$\Rightarrow 10x = 7.5 (x + y)$
$\Rightarrow 2.5x = 7.5 y$
$\Rightarrow x = 3y$
$\Rightarrow x : y = 3 : 1$

17.(D) Ratio of equivalent capitals of A, B and C for 1 month
$= (40500 \times 6 + 45000 \times 6) : (45000 \times 12)$
$: (60000 \times 6 + 45000 \times 6)$
$= (405 + 450) : (450 \times 2) : (600 + 450)$
$= 855 : 900 : 1050$
$= 171 : 180 : 210$
$= 57 : 60 : 70$
Sum the ratios = 57 + 60 + 70 = 187

$$\text{Required difference} = \frac{70 - 57}{187} = 56100$$

$$= \frac{13}{187} \times 56100 = \text{` } 3900$$

18. (A) Let the cost price of 1 orange = Re. 1.

$$\therefore \text{C.P. of 1 banana} = \text{Rs. } \frac{3}{4}$$

$$\text{and C.P. of 1 apple} = \text{Rs. } \frac{3}{2}$$

New prices:
1 orange = Re. 1.1

$$1 \text{ banana} \equiv \frac{3}{4} \times \frac{110}{100} = \text{Rs. } 0.825$$

$$1 \text{ apple} \equiv \frac{3}{2} \times \frac{110}{100} = \text{Rs. } 1.65$$

$\therefore$ Original price of (4 bananas + 2 apples + 3 oranges)
= Rs. (3 + 3 + 3) = Rs. 9
New price of (4 banana + 2 apples + 3 oranges)
= Rs. $(4 \times 0.825 + 2 \times 1.65 + 3 \times 1.1)$
= Rs. (3.3 + 3.3 + 3.3) = 9.9
$\therefore$ Percentage increase

$$= \frac{9.9 - 9}{9} \times 100 = 10\%$$

19. (A) Let the no. be x
$\Rightarrow$ % change

$$= \frac{\text{original result} - \text{changed result}}{\text{original result}} \times 100\%$$

$$= \frac{5x - \frac{x}{5}}{5x} \times 100\%$$

$$= \frac{25x - x}{25x} \times 100\%$$

$$= \frac{24x}{25x} \times 100\% = 96\%$$

20. (C) 20% decrease in price
⇒ 25% increase in consumption
(when expenditure is constant)
⇒ increased amount of sugar = 25% of 20kg
= 5 kg
⇒ Total amount now of sugar = (20 + 5) kg
= 25 kg

21. (C) Votes got by Rahul Gandhi
= (100-10)% of $\frac{4}{5}$ of total voters
= 90% of $\frac{4}{5}$ of total voters
= $\frac{9}{10}\times\frac{4}{5}$ of total voters
= $\frac{18}{25}$ of total voters
= 216 voters -------- (i)
Now, Votes got by Varun Gandhi
= (100-20)% of $\left(1-\frac{4}{5}\right)th$ of the total voters
= 80% of $\frac{1}{5}th$ of total voters
= $\frac{4}{5}\times\frac{1}{5}$ of total voters
= $\frac{4}{25}$ of total voters
= $\frac{216}{18}\times 4$ = 48 voters
So, total no. of votes polled = (216 + 48) votes
= 264 votes

22. (C) 10% reduction in price
⇒ 11.11% increase in quantity
(when expenditure is constant)
A.T.Q,
11.11% of original amount of wheat = 50 gm
⇒ Original amount (ie.100%) of wheat
= (50 × 9) gm
= 450 gm

23. (A) C.P. of each book sold by publisher
= $\frac{\text{`}\,70{,}000}{2000-400}$
= ` 43.75
S.P. of each book sold by publisher
= (100-30)% of ` 75
= ` 52.5
So, % gain = $\frac{52.5-43.75}{43.75}\times 100\%$
(∵ S.P. > C.P.)
= 20% gain

24.(C) If the C.P. of wrist watch be ` x then
C.P. of wall clock = ` $(390-x)$
So, $\frac{x\times 10}{100}+\frac{(390-x)\times 15}{100}=51.50$
⇒ $10x + 5850 - 15x = 5150$
⇒ $5x = 5850 - 5150 = 700$
⇒ $x = \frac{700}{5}$ = ` 140
∴ C.P. of wall clock = 390 – 140= ` 250
∴ Required difference = 250 – 140 = ` 110

25.(A)
∵ (40 – 20)% = Re1
So, 120% = $\frac{1}{20}\times 120$= ` 6

26. (B) Required Marked price
= $210\times\frac{120}{100}\times\frac{100}{(100-12.5)}$
= $210\times\frac{120}{87.5}$
= ` 288

27. (D) Let the C.P. = x
So, S.P. in 1st case = $1.05x$
now, C.P. in 2nd case = $0.95x$
and S.P. in 2nd case = $1.05x - 2$
Now, A.T.Q. $0.95x \times 1.1 = 1.05x - 2$
or, $1.045x = 1.05x - 2$
⇒ $1.05x - 1.045x = 2$
⇒ $0.005x = 2$
⇒ $x = \frac{2}{0.005} = 400$

28.(C) Discount on ` 36000 = $\frac{3600\times 7}{100}$ = ` 2520
Discount on first ` 20,000 = $\frac{20000\times 8}{100}$
= ` 1600
Discount on next ` 10,000 = $\frac{10{,}000\times 5}{100}$
= ` 500
∴ Discount on remaining ` 6,000
= 2520 – (1600 + 500) ` 420
∴ Required percent = $\frac{420\times 100}{6000}$ = 7%

29. (B) Net discount given by A
= $\left(5+25-\frac{5\times 25}{100}\right)\%$ = 28.75%
& Net discount given by B

$= \left(16+12-\frac{16\times12}{100}\right)\% = 26.08\%$

$\Rightarrow$ A is giving more discount

$\Rightarrow$ it is more profitable to purchase the fan from A.

30.(C) Single equivalent discount $= \left(p+q-\frac{pq}{100}\right)\%$

31. (A) Required ratio = (15× 22) : (11 × 25)
= 330 : 275
= 6 : 5

32. (D) Let Rs. x = quaterly payment
given, r = 16% per annum
So, rate of interest per quarter

$= \frac{16}{4} = 4\%$ per quarter

Also,
No. of quarters in 2 years = 4 × 2
= 8 quarters
So,
$8x + (7 + 6 + 4 + 3 + 2 + 1)\times 4\%$ of $x = 2280$

or, $8x + \left(\frac{7\times8}{2}\right) \times 4\%$ of $x = 2280$

$\left[\because 1+2+3+\ldots+n = \frac{n(n+1)}{2}\right]$

or, $8x + 112\%$ of $x = 2280$
or, 800% of $x + 112\%$ of $x = 2280$
$\Rightarrow$ 912% of $x = 2280$

So, $x = \frac{2280\times100}{912} = ₹\ 250$

Direct Method:-
Quarterly Payment

$= \frac{100\times2280}{100\times8+\frac{4\times8\times7}{2}}$

$= \frac{100\times2280\times2}{1600+224} = 250$

33. (D) Let x be the required annual payment.
So, also, r = 10% p.a. and t = 3 years

$\left[1 \xrightarrow{+10\%} 1.1\right]$

So, $(1 + 1.1 + 1.21)x = 3310 \times (1.1)^3$
or, $3.31x = 3310 \times 1.331$

$x = \frac{3310\times1.331}{3.31}$
= Rs. 1331

Direct Method:-

Annual payment $= \frac{3310}{\left(\frac{10}{11}+\frac{100}{121}+\frac{1000}{1331}\right)}$

$= \frac{3310\times1331}{(1210+1100+1000)}$
= 1331

34.(C) $A = P\left(1+\frac{R}{100}\right)^T$

$\Rightarrow$ $3 = 1\left(1+\frac{R}{100}\right)^3$

On squaring both sides,

$9 = 1\left(1+\frac{R}{100}\right)^6$

35. (A) Cash price of refrigerator

$= 1500 + \left(1020\times\frac{10}{11}\right)+\left(1003+\frac{100}{121}\right)$

$+\left(990\times\frac{1000}{1331}\right)$

$= 1500+\left\{\frac{(10200\times121)+(100300\times11)+990000}{1331}\right\}$

$= 1500+\left(\frac{1234200+1103300+990000}{1331}\right)$

$= 1500 + \frac{3327500}{1331}$
= 1500 + 2500
= 4000

Alternative Method:-
Cash price of refrigerator

$= 1500+\frac{1020}{1.1}+\frac{1003}{(1.1)^2}+\frac{990}{(1.1)^3}$

$= 1500+\frac{1020}{1.1}+\frac{1003}{1.21}+\frac{990}{1.331}$
= 1500 + 2500
= 4000

36. (D) When B works normally then days taken by B to complete the work

$= \frac{20\times12}{20-12}$ days
= 30 days

Now, If B does the work only half a day daily
$\Rightarrow$ B will take twice the total days to momplete the whole work alone
$\Rightarrow$ Now No. of days taken by B
= (30 × 2) days
= 60 days

So,

Now days taken by (A + B) together to do the whole work = $\frac{20\times60}{20+60}$ = 15 days

37.(A) Let time taken by B in completing the work = x day

$\therefore$ Time taken by A (x – 10) days

$\therefore \quad \frac{1}{x}+\frac{1}{x-10}=\frac{1}{12}$

$\Rightarrow \quad \frac{x-10+x}{x(x-10)}=\frac{1}{12}$

$\Rightarrow 24x - 120 = x^2 - 10x$

$\Rightarrow x^2 - 34x + 120 = 0$

$\Rightarrow x^2 - 30x - 4x + 120 = 0$

$\Rightarrow x(x-30) - 4(x-30) = 0$

$\Rightarrow (x-4)(x-30) = 0$

$\Rightarrow x - 30$ because $x \neq 4$

38. (C) Let days taken by A to do the whole work = x days

So, days taken by B to do the whole work = $(x-5)$ days

and, days taken by C to do the whole work = $(x-9)$ days

Now, ATQ,

Days taken by (A + B) together to do the whole work

= Days taken by C alone to do the whole work

$\Rightarrow \frac{x(x-5)}{x+(x-5)} = x-9$

or, $x^2 - 5x = (x-9)(2x-5)$

or, $x^2 - 5x = 2x^2 - 5x - 18x + 45$

or, $x^2 - 18x + 45 = 0$

or, $x^2 - 15x - 3x + 45 = 0$

or, $x(x-15) - 3(x-15) = 0$

or, $(x-3)(x-15) = 0 \Rightarrow x = 3$ or 15

but $x = 3$ is not possible as $x-5$ or $x-9$ will become negative.

So, x = 15 days

39.(B) Time $\alpha \frac{1}{\text{cross-sectional area of the pipe}}$

Time $\alpha \frac{1}{\frac{\pi}{4}d^2}$

Time $\alpha \frac{1}{d^2}$

$\therefore \quad \frac{t_2}{t_1} = \frac{(d_1)^2}{(d_2)_2}$

So, $t_2 = t_1\left(\frac{d_1}{d_2}\right)^2$

t_1 = 40 minutes, $d_1 = d$, $d_2 = 2d$

$\therefore \quad t_2 = 40\left(\frac{d}{2d}\right)^2$

$t_2 = 40\left(\frac{1}{2}\right)^2$

t_2 = 10 minutes

$\Rightarrow$ time taken by a pipe of diameter 2d for doing the same job = 10 minutes

40.(C) Let the capacity of the tank be x gallons.

Quantity of water filled in the tank in 1 minute when all the pipes A, B and C are opened simultaneously = $\frac{x}{20}+\frac{x}{24}-3$

According to the question, $\frac{x}{20}+\frac{x}{24}-3=\frac{x}{15}$

$\Rightarrow \quad \frac{x}{20}+\frac{x}{24}-\frac{x}{15}=3$

$\Rightarrow \quad \frac{6x+5x-8x}{120}=3$

$\Rightarrow \quad 3x = 3\times120$

$\Rightarrow \quad x = \frac{3\times120}{3} = 120$ gallons

41. (B) Let speed of car = x km/hr.

Here, Distance covered by the car in 27 minutes = Distance covered by the sound in (28 minutes 30 seconds – 27 minutes)

$\Rightarrow \quad x$ km/hr $\times \left(\frac{27}{60}\right)$ hr.

$= \left(330\times\frac{18}{5}\text{ km/hr}\right) \times \left(\frac{1.5}{60}\text{ hr}\right)$

$\Rightarrow \quad x = 330 \times \frac{18}{5}\times\frac{1.5}{60}\times\frac{60}{27} = 66$

$\Rightarrow$ Speed of car = 66 km/hr.

42. (D) In the race between Sonu and Monu.

Distance travelled by Sonu and Monu in same time = 600 mtr. & (600 – 60)mtr

= 600 mtr. & 540 mtr.

$\Rightarrow$ In the same time,

Ratio of distance travelled by Sonu & Monu = 10 : 9

Similarly,

In the same time,

Ratio of distance travelled by Monu & Bablu = 500 : (500 – 25)

= 500 : 475

= 20 : 19

So,

In the same time,

Ratio of distance travelled by Sonu, Monu & Bablu

$= 10 \times 20 : 9 \times 20 : 9 \times 19$

$= 200 : 180 : 171$

$\Rightarrow$ When Sonu travels 200 m, Bablu will travel 171 m

So, When Sonu travels 400 m, Bablu will travel 342 m

$\Rightarrow$ In 400 m race between Sonu & Bablu, Required No. of metres by which Sonu will win the race

$= 400\text{ m} - 342\text{ m}$

$= 58\text{ m}$

43. (A) Let x = length of the faster train (in mtr.)

So, 36 seconds = $\frac{x+10}{(40-20)kmph}$

$\Rightarrow \quad x = 36\text{ second} \times 20 \times \frac{5}{18}\text{ m/sec}$

$= 200\text{ mtr.}$

44. (A) Speed of boat in still water = $\frac{S_{down} + S_{up}}{2}$

$= \frac{x+y}{2} = 0.5\,(x+y)$

45.(C) Expression

$= 4 + 44 + 444 + \ldots\ldots$ to n terms

$= 4\,(1 + 11 + 111 + \ldots$ to n terms)

$= \frac{4}{9}\,(9 + 99 + 999 + \ldots\ldots$ to n terms)

$= \frac{4}{9}[(10-1)+(100-1)+(1000-1)+\ldots\ldots$ to n terms]

$= \frac{4}{9}[(10+10^2+10^3+\ldots\ldots$ to n terms$) - n]$

$= \frac{4}{9}[10(1+10+10^2+\ldots\ldots$ to n terms$) - n]$

$= \frac{40}{9}\left(\frac{10^n-1}{9}\right) - \frac{4}{9}n$

$\left[\because 1+10+10^2+\ldots\ldots \text{ to n terms} = \frac{10^n-1}{9}\right]$

$= \frac{40}{81}(10^n-1) - \frac{4}{9}n$

46. (B) $180 = 2 \times 2 \times 3 \times 3 \times 5$

$a^3b = abc$

$\Rightarrow \quad a^2 = bc$

$\therefore \quad a^3b = abc = 180 = 1^2 \times 180 \times 1$

$\Rightarrow \quad 1^3 \times 180$

$\Rightarrow \quad c = 1$

47. (C) $a + b + c = 0$

$\Rightarrow \quad b + c = -a$

On squaring both sides, we get

$(b + c)^2 = a^2$

$\Rightarrow \quad b^2 + c^2 = 2bc = a^2$

$\Rightarrow \quad a^2 + b^2 + c^2 + 2bc = 2a^2$

$\Rightarrow \quad a^2 + b^2 + c^2 = 2a^2 - 2bc$

$= 2\,(a^2 - bc)$

$\therefore \quad \frac{a^2+b^2+c^2}{a^2-bc} = \frac{2(a^2-bc)}{a^2-bc} = 2$

48. (D) $(a-1)\sqrt{2}+3 = b\sqrt{2}+a$

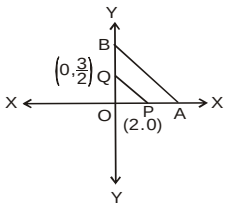
$\Rightarrow \quad a = 3 : a - 1 = b$

$\Rightarrow \quad 3 - 1 : b \Rightarrow b = 2$

$\therefore \quad a + b = 3 + 2 = 5$

49.(B) OP = 2

$OQ = \frac{3}{2}$



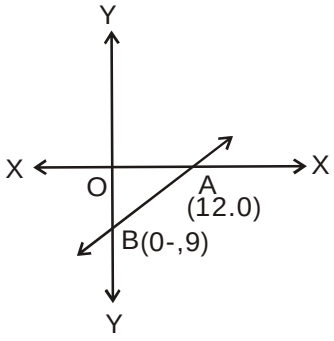
$\therefore \quad PQ = \sqrt{OP^2 + OQ^2}$

$= \sqrt{2^2 + \left(\frac{3}{2}\right)^2}$

$= \sqrt{4 + \frac{4}{9}}$

$= \sqrt{\frac{16+9}{4}} = \sqrt{\frac{25}{4}} = \frac{5}{2} = 2.5\text{cm}$

50.(A)



Putting $x = 0$ in $9x - 12y = 108$, we get, $y = -9$

Putting $y = 0$ in $9x - 12y = 108$, we get, $x = 12$

$\therefore \quad OA = 12, OB = 9$

$\therefore \quad AB = \sqrt{OA^2 + OB^2}$

$= \sqrt{12^2 + 9^2}$

$= \sqrt{144 + 81}$

$= \sqrt{225}$

$= 15$ units

51.(A) $\left(x+\frac{1}{x}\right)^2 = 3$

$\Rightarrow x+\frac{1}{x} = \sqrt{3}$

On cubing both sides.

$x^3 + \frac{1}{x^3} + 3\left(x+\frac{1}{x}\right) = 3\sqrt{3}$

$\Rightarrow x^3 + \frac{1}{x^3} = 3\sqrt{3} - 3\sqrt{3} = 0$

$\Rightarrow x^6 + 1 = 0$

$\therefore x^{206} + x^{200} + x^{90} + x^{84} + x^{18} + x^{12} + x^6 + 1$

$= x^{200}(x^6+1) + x^{84}(x^6+1) + x^{12}(x^6+1) + (x^6+1) = 0$

52. (A) $\frac{\sqrt{7}}{\sqrt{16+6\sqrt{7}} - \sqrt{16-6\sqrt{7}}}$

$= \frac{\sqrt{7}}{\sqrt{9+7+2\times3\times\sqrt{7}} - \sqrt{9+7-2\times3\times\sqrt{7}}}$

$= \frac{\sqrt{7}}{\sqrt{(3)^2+(\sqrt{7})^2+2\times3\times\sqrt{7}} - \sqrt{(3)^2+(\sqrt{7})^2-2\times3\times\sqrt{7}}}$

$= \frac{\sqrt{7}}{\sqrt{(3+\sqrt{7})^2} - \sqrt{(3-\sqrt{7})^2}}$

$= \frac{\sqrt{7}}{(3+\sqrt{7}) - (3-\sqrt{7})} = \frac{\sqrt{7}}{2\sqrt{7}} = \frac{1}{2}$

53. (B) $\frac{2x^2+3xy+2y^2}{2x^2-3xy+2y^2} = \frac{2(x^2+y^2+2xy)-xy}{2(x^2+y^2-2xy)+xy}$

$= \frac{2(x+y)^2-xy}{2(x-y)^2+xy} = \frac{2\times(6)^2-1}{2\times(4\sqrt{2})^2+1} = \frac{2\times36-1}{2\times32+1}$

$= \frac{71}{65}$

$\because x = \frac{\sqrt{2}+1}{\sqrt{2}-1}$ and $xy = 1 \Rightarrow y = \frac{1}{x} = \frac{\sqrt{2}-1}{\sqrt{2}+1}$

$\Rightarrow x + y = \frac{\sqrt{2}+1}{\sqrt{2}-1} + \frac{\sqrt{2}-1}{\sqrt{2}+1} = 6$

and $x - y = \frac{\sqrt{2}+1}{\sqrt{2}-1} - \frac{\sqrt{2}-1}{\sqrt{2}+1} = 4\sqrt{2}$

54. (D) $\frac{x}{2a} = \frac{2b}{a+b}$

Apply C & D,

$\frac{x+2a}{x-2a} = \frac{a+3b}{b-a}$ ..... (1)

Again,

$\frac{x}{2b} = \frac{2a}{a+b}$

Apply C & D,

$\frac{x+2b}{x-2b} = \frac{3a+b}{a-b}$ ..... (2)

Now,

$\frac{x+2a}{x+2b} + \frac{x+2b}{x-2b} = \frac{a+3b}{-(a-b)} + \frac{3a+b}{a-b}$

$= \frac{-a-3b+3a+b}{a-b}$

$= \frac{2a-2b}{a-b} = 2$

55. (C) $\left(\frac{1}{\cos\theta}+\frac{1}{\cot\theta}\right)\left(\frac{1}{\cos\theta}-\frac{1}{\cot\theta}\right)$

$= \left(\frac{1}{\cos\theta}+\frac{\sin\theta}{\cos\theta}\right)\left(\frac{1}{\cos\theta}-\frac{\sin\theta}{\cos\theta}\right)$

$= \left(\frac{1+\sin\theta}{\cos\theta}\right)\left(\frac{1-\sin\theta}{\cos\theta}\right)$

$= \frac{1-\sin^2\theta}{\cos^2\theta} = \frac{\cos^2\theta}{\cos^2\theta} = 1$

56. (C) $\frac{9}{\text{cosec}^2\theta} + 4\cos^2\theta + \frac{5}{1+\tan^2\theta}$

$= 9\sin^2\theta + 4\cos^2\theta + \frac{5}{\sec^2\theta}$

$= 5\sin^2\theta + 4\sin^2\theta + 4\cos^2\theta + 5\cos^2\theta$

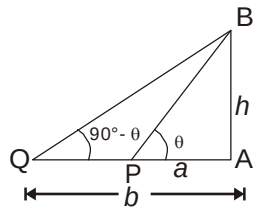
$= 5(\sin^2\theta+\cos^2\theta) + 4(\sin^2\theta+\cos^2\theta)$

$= (5 \times 1) + (4 \times 1)$

$= 5 + 4$

$= 9$

57. (A)



here, h = height of tower AB

$\tan\theta = \frac{h}{a}$ ---------- (i)

$\tan(90^\circ-\theta) = \frac{h}{b}$

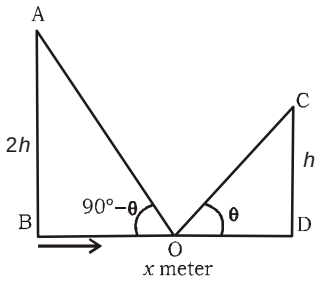
or, $\cot\theta = \frac{h}{b}$

$\Rightarrow \tan\theta = \frac{b}{h}$ ---------- (ii)

from (i) and (ii),

$\frac{h}{a} = \frac{b}{a} \Rightarrow h = \sqrt{ab}$

58.(A) CD = h metre, AB = 2h metre



OB = OD = $\frac{x}{2}$ metre

From ΔOCD,

$\tan\theta = \frac{h}{\frac{x}{2}} = \frac{2h}{x}$ _____(i)

From ΔOAB,

$\tan(90^\circ - \theta) = \frac{AB}{BO}$

$\Rightarrow \cot\theta = \frac{2h}{\frac{x}{2}} = \frac{4h}{x}$ _____(ii)

Multiplying both equations,

$\tan\theta . \cot\theta = \frac{2h}{x} \times \frac{4h}{x}$

$\Rightarrow x^2 = 8h^2$

$\Rightarrow h = \frac{x}{2\sqrt{2}}$ meter

59. (C) $\tan 2\theta . \tan 3\theta = 1$

$\Rightarrow \tan 3\theta = \frac{1}{\tan 2\theta} = \cot 2\theta$

$\Rightarrow \tan 3\theta = \tan(90^\circ - 2\theta)$

$\Rightarrow 3\theta = 90^\circ - 2\theta \Rightarrow 5\theta = 90^\circ$

$\Rightarrow \theta = 18^\circ$

$\therefore 2\cos^2\frac{5\theta}{2} - 1 = 2\cos^2 45^\circ - 1$

$= 2\times\frac{1}{2} - 1 = 0$

60.(B) $\sin 17^\circ = \frac{x}{y}$

$\cos 17^\circ = \sqrt{1-\sin^2 17^\circ}$

$= \sqrt{1-\frac{x^2}{y^2}} = \sqrt{\frac{y^2-x^2}{y^2}}$

$= \sqrt{\frac{y^2-x^2}{y^2}}$

$\therefore \sec 17^\circ = \frac{y}{\sqrt{y^2-x^2}}$

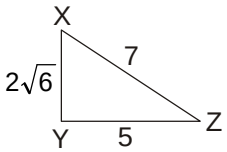
$\sin 73^\circ = \sin(90^\circ - 17^\circ) = \cos 17^\circ$

$\therefore \sec 17^\circ - \sin 73^\circ$

$= \frac{y}{\sqrt{y^2-x^2}} - \frac{\sqrt{y^2-x^2}}{y}$

$= \frac{y^2-y^2+x^2}{y\sqrt{y^2-x^2}} = \frac{x^2}{y\sqrt{y^2-x^2}}$

61.(B)



XZ − YZ = 2 _____(i)

$\Rightarrow XY^2 + YZ^2 = XZ^2$

$\Rightarrow (2\sqrt{6})^2 = XZ^2 - YZ^2$

$\Rightarrow 24 = (XZ - YZ)(XZ+YZ)$

$\Rightarrow XZ + YZ = 12$ _____(ii)

Adding both the equations,

$2 \times Z = 14 \Rightarrow XZ = 7 \ \therefore YZ = 7 - 2 = 5$

$\therefore \sec X = \frac{7}{2\sqrt{6}}$

$\tan X = \frac{5}{2\sqrt{6}}$

$\therefore \sec X + \tan X = \frac{7}{2\sqrt{6}} + \frac{5}{2\sqrt{6}} = \frac{12}{2\sqrt{6}} = \sqrt{6}$

62. (A) Angles of triangle

$\Rightarrow (a-d)^\circ, a^\circ, (a+d)^\circ$

$\therefore a - d + a + a + d = 180^\circ$

$\Rightarrow 3a = 180^\circ \Rightarrow a = 60^\circ$

$\therefore \frac{a-d}{a+d} = \frac{60}{\pi} = \frac{60}{180} = \frac{1}{3}$

$\Rightarrow \frac{60-d}{60+d} = \frac{1}{3}$

$\Rightarrow 180 - 3d = 60 + d$

$\Rightarrow 4d = 120^\circ \Rightarrow d = 30^\circ$

$a - d = 60^\circ - 30^\circ = 30^\circ$

$a = 60^\circ$

$a + d = 60^\circ + 30^\circ = 90^\circ$

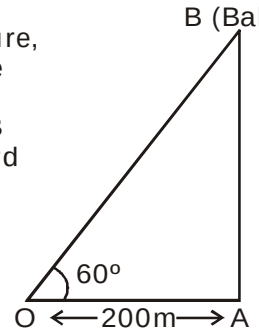
So, Angles of triangle are 30º,60º and 90º

63. (A)

In the given figure, after leaving the point A, balloon reach to point B vertically upward in 1.5 min

Here, O → the observer

So, ∠BOA = 60º



$\Rightarrow \tan 60^\circ = \frac{AB}{OA}$

$\Rightarrow AB = OA \tan 60^\circ$

$= 200 \times \sqrt{3}$ m

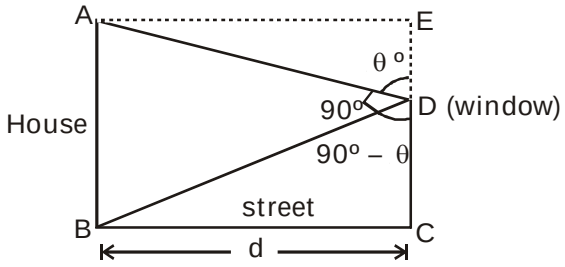
So, speed of the ballon

$= \frac{\text{distance}}{\text{time}}$

$= \frac{AB}{\text{time to reach from A to B}}$

$= \frac{200\sqrt{3}m}{\frac{1.5}{60}\text{sec}} = 3.87$ m/sec.

64. (C)



Here,

AB → height of the house

& CD → height of the window

So, ATQ,

∠ADB = 90º

Also,

here, line AD makes as angle θº with the vertical line DE.

$\Rightarrow \angle ADE = \theta^\circ$ also, $\Rightarrow \angle BDC = 90^\circ - \theta$

In ΔBCD,

$\tan(90^\circ - \theta) = \frac{BC}{CD} = \frac{d}{CD}$ or, $\cot\theta = \frac{d}{CD}$

$\Rightarrow CD = \frac{d}{\cot\theta} = d\tan\theta$

also,

In ΔADE,

$\tan\theta = \frac{AE}{DE} = \frac{d}{DE} \Rightarrow DE = \frac{d}{\tan\theta} = d\cot\theta$

So, the height of the house,

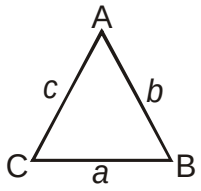
$AB = CD + DE$

$= d(\tan\theta + \cot\theta)$

$= d\left(\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta}\right) = d\left(\frac{1}{\cos\theta \times \sin\theta}\right)$

$= d \sec\theta \operatorname{cosec}\theta$

65. (A)



Let ABC is a Δ and a, b & c are the lengths of BC, CA & AB respectively.

∵ sin A : sin B : sin C = 1 : 1 : $\sqrt{2}$

By sine formula:

$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

⇒ a : b = sin A : sin B & b : c = sin B : sin C

⇒ a : b : c = 1 : 1 : $\sqrt{2}$

Let $a = x$, $b = x$ & $c = \sqrt{2}x$

ATQ,

$c^2 : (a^2 + b^2) = (\sqrt{2}x)^2 : (x^2 + x^2)$

$= 2x^2 : 2x^2$

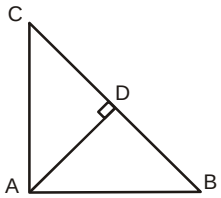
$= 1 : 1$

66.(B) In Δ s ACD and ABC.

∠CDA = ∠CAB = 90º

∵ ∠C is common.

∴ Δ ACD ⊔ Δ ABC



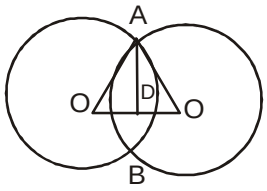
$\therefore \frac{\Delta ACD}{\Delta ACD} = \frac{AC^2}{BC^2}$

$\Rightarrow \frac{10}{40} = \frac{9^2}{BC^2}$

$\Rightarrow BC^2 = 4 \times 9^2$

∴ BC = 2 × 9 = 18 cm

67.(B)



$OD = \sqrt{15^2 - 12^2}$

$= \sqrt{225 - 144}$

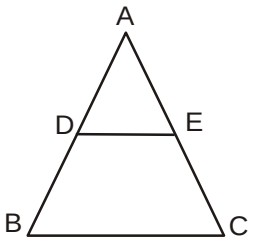
$= \sqrt{81} = 9$

$OD = \sqrt{13^2 - 12^2}$

$= \sqrt{169 - 144} = \sqrt{25} = 5$

$\therefore$ OO' = 9 + 5 = 14 cm

68. (B)



DE $\square$ BC

$\angle ADE = \angle ABC$

$\angle AED = \angle ACB$

$\therefore$ $\Delta ADE \sqcup \Delta ABC$

$\therefore$ $\frac{\square BDEC}{\Delta ADE} = \frac{1}{1}$

$\Rightarrow$ $\frac{\square BDEC}{\Delta ADE} + 1 = 1 + 1$

$\Rightarrow$ $\frac{\Delta ABC}{\Delta ADE} = 2 = \frac{AB^2}{AD^2}$

$\Rightarrow$ $\frac{AB}{AD} = \sqrt{2}$

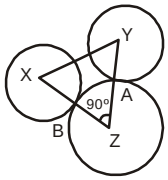
$\Rightarrow$ $\frac{AB}{AD} - 1 = \sqrt{2} - 1$

$\Rightarrow$ $\frac{BD}{AD} = \sqrt{2} - 1$

$\Rightarrow$ $\frac{AD}{BD} = \frac{1}{\sqrt{2}-1}$

AD : BD = 1 : $\frac{1}{\sqrt{2}-1}$

69.(B) XZ = r + 9 & YZ = r + 2



$\therefore XY^2 = XZ^2 + ZY^2$

$\Rightarrow 17^2 = (r+9)^2 + (r+2)^2$

$\Rightarrow 289 = r^2 + 18r + 18 + r^2 + 4r + 4$

$\Rightarrow 2r^2 + 22r + 85 - 289 = 0$

$\Rightarrow 2r^2 + 22r - 204 = 0$

$\Rightarrow r^2 + 11r - 102 = 0$

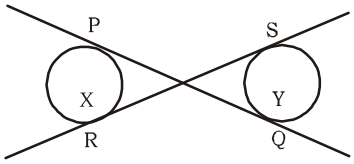
$\Rightarrow r^2 + 17r - 6r - 102 = 0$

$\Rightarrow r(r + 17) - 6(r + 17) = 0$

$\Rightarrow (r - 6)(r + 17) = 0$

$\Rightarrow r = 6$ cm

70.(A)



Length of transverse trangent

$= \sqrt{XY^2 - (r_1 + r_2)^2}$

$\Rightarrow 8 = \sqrt{XY^2 - 9^2}$

$\Rightarrow 64 = XY^2 - 81$

$\Rightarrow XY^2 = 64 + 81 = 145$

$\Rightarrow XY = \sqrt{145}$

71. (C) $\because$ AB is diameter

$\Rightarrow \angle ADB = 90^\circ$

also DO $\perp$ AB at 'O', the centre of the circle.

$\therefore$ $\Delta ADO \cong \Delta BDO$ (by SAS cong. Rule)

$\Rightarrow$ AD = DB (by CPCT)

$\therefore$ $\angle DAB = \angle ABD = 45^\circ$

But $\angle ACD = \angle ABD$ (angles in the same segment of a circle)

$= 45^\circ$

72. (A) $\angle CAD = \angle CBD$ (Angles iin the same segment of a circle)

$= 60^\circ$

Now $\angle BAD = \angle BAC + \angle CAD$

$= 30^\circ + 60^\circ = 90^\circ$

Now $\angle BAD + \angle BCD = 180^\circ$

($\because \square$ ABCD is cyclic)

$\Rightarrow 90^\circ + \angle BCD = 180^\circ$

$\Rightarrow \angle BCD = 180^\circ - 90^\circ = 90^\circ$

73. (A) Perimeter of the rope

= 3× ($\frac{1}{3}$ of circumference of a circle) + 3 × diameter of a circle)

$= 3 \times \frac{1}{3} \times 2\pi + 3 \times 2$

$= 2\pi + 6$

74. (A) $\because$ DC | | AB (given)

$\Rightarrow \Delta AOB \sim \Delta COD$ (by AA similarity)

$\Rightarrow \frac{ar(\Delta AOB)}{ar(\Delta COD)} = \frac{AB^2}{DC^2}$

$= \frac{(3DC)^2}{DC^2} = \frac{9DC^2}{DC^2} = \frac{9}{1}$

75. (B) In the given figure, ΔABC is a right angle triangle, where $\angle B = 90^o$

AE, BD and CF are the 3 medians

Now, AB = 12 cm, BC = 9 cm & AC = 15 cm

So, here,

$$BD = \frac{1}{2}AC \Rightarrow BD^2 = \frac{1}{4}AC^2$$

$$\Rightarrow AE^2 + CF^2 = \frac{5}{4}AC^2$$

also,

$$\Rightarrow BD^2 + AE^2 + CF^2 = \left(\frac{1}{4} + \frac{5}{4}\right)AC^2$$

$$= \frac{6}{4}AC^2 = \frac{6}{4} \times 225 = 337.5 \text{ cm}$$

76. (A) Let x unit be the side of the square.

its diagonal = $\sqrt{2}\,x$ unit

A_1 : Area of the square = x^2 sq. unit

A_2 : Area of the equilateral Δ described on the diagonal of the square.

$$= \frac{\sqrt{3}}{4} \times (\sqrt{2}x)^2 \text{ sq.unit}$$

$$= \frac{\sqrt{3}}{4} \times 2x^2 \text{ sq. unit}$$

$$\Rightarrow \frac{A_2}{A_1} = \frac{\frac{\sqrt{3}}{2}x^2}{x^2} = \frac{\sqrt{3}}{2}$$

$\Rightarrow A_2 : A_1 = \sqrt{3} : 2$

77. (A) d_m : diameter of the moon

d_e : diameter of the earth

Case I, $\because d_m = \frac{1}{4} d_e$

Let r unit be the radius of the earth.

then, $d_m = \frac{1}{4} 2r = \frac{r}{2}$ unit

R_m : radius of the moon $= \frac{\frac{r}{2}}{2} = \frac{r}{4}$ unit

$$\frac{V_e}{V_m} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi\left(\frac{r}{4}\right)^3} = 64 : 1$$

78. (B) Perimeter = $2(l + b)$

$P = 2(l + w)$

$\frac{P}{2} - w = l$

its area $= l \times b$

$$k = \left(\frac{P}{2} - w\right) \times w$$

$\Rightarrow 2k = Pw - 2w^2$

$\Rightarrow 2w^2 - Pw + 2k = 0$

79. (C) Volume of the ice-cream in cylindrical container $= \pi r^2 h = \frac{22}{7} \times 6 \times 6 \times 15$ cm^3

Let r cm be the radius of the cone,

its height = $4r$ cm

Volume of 1 cone with hemispherical top

$$= \frac{1}{3}\pi r^2 h + \frac{2}{3}\pi r^3$$

$$= \frac{1}{3}\pi r^2 \times 4r + \frac{2}{3}\pi r^3$$

$$= \frac{4}{3}\pi r^3 + \frac{2}{3}\pi r^3$$

$$= \frac{6}{3}\pi r^3 = 2\pi r^3$$

V. of 10 such cones = $10 \times 2\pi r^3$ cm^3

ATQ,

$$\frac{22}{7} \times 6 \times 6 \times 15 = 10 \times 2\pi r^3$$

$$\frac{22}{7} \times 6 \times 6 \times 15 = 10 \times 2 \times \frac{22}{7} \times r^3$$

$$\Rightarrow r^3 = \frac{6 \times 6 \times 15}{10 \times 2} = \frac{6 \times 6 \times 6}{2 \times 2 \times 2}$$

$$\Rightarrow r = \frac{6}{2} \text{cm} = 3 \text{ cm}$$

80. (*) figure is not gettiva matched with the question asked.

81. (A) Area of rectangular field = $\frac{1000}{\frac{1}{4}}$ m²

= 4000 m²

∵ breadth = 50 m

∴ Length = $\frac{4000}{50}$ = 80 m

New length of field = (80+20) m = 100 m
New area = 100 × 50 = 5000sq. m

∴ Required exenditure = ` $\left(5000 \times \frac{1}{4}\right)$ = ` 1250

82. (C) Increase in water level

$= \frac{\text{Volume of sphere}}{\text{Area of base of cylinder}}$

$= \frac{\frac{4}{3}\pi r^2}{\pi r^2} = \frac{4}{3}r = \frac{4}{3} \times 3.5 = \frac{14}{3}$ cm.

∴ Required water level

$= 7 - \frac{14}{3} = \frac{7}{3}$ cm

83. (A) Curved surface of cylinder = $2\pi rh$

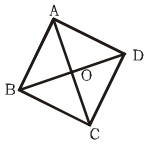
Case II

Radius = $\frac{1}{3}$r : height = 6h

Curved surface = $2\pi \times \frac{1}{3}$ r ×6h = $(2\pi rh)\times 2$

∴ Increase will be twice.

84. (A) BO = 4 units: OC = 3 units & ∠BOC = 90º



∴ BC = $\sqrt{4^2+3^2}$ = 5 units

∴ BC^2 = 25 sq. units

85.(A) $\frac{2}{3}\pi r^3 = 19404$

$\Rightarrow \frac{2}{3} \times \frac{22}{7} \times r^3 = 19404$

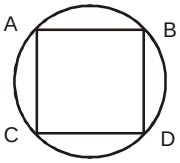
$\Rightarrow r^3 = \frac{19404 \times 3 \times 7}{2 \times 22} = 9261$

$\Rightarrow r = \sqrt[3]{21 \times 21 \times 21} = 21$cm

∴ Total surface area = $3\pi r^2$

$= 3 \times \frac{22}{7} \times 21 \times 21 = 4158$ sq. cm

86.(C)

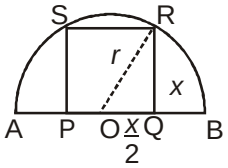


BD = Diagonal = 16cm

Area of square = $\frac{1}{2} \times BD^2$

$= \frac{1}{2} \times 16 \times 16 = 128$ sq. cm.

87. (A) Let '*r*' be the radius of the semi-circle and '*x*' be the side of the inscribed square.



In ΔOQR,

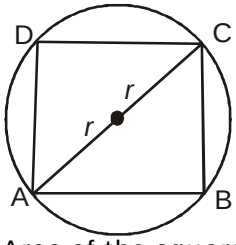
$r^2 = x^2 + \left(\frac{x}{2}\right)^2$

$r^2 = \frac{5}{4}x^2$

$\Rightarrow x^2 = \frac{4}{5}r^2$

∴ Area of the square = $\frac{4r^2}{5}$ sq. unit

Again, let '*y*' be side of the square inscribed in the circle of same radius.



$y \left[\because 2r = \sqrt{2}y \Rightarrow y = \frac{2r}{\sqrt{2}} \right]$

Area of the square = y^2

$= \left(\frac{2r}{\sqrt{2}}\right)^2$ sq. unit

$= 2r^2$ sq. unit

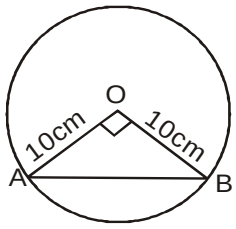
Required ratio = $\frac{4r^2}{5} : 2r^2$

$= 2r^2\left[\frac{2}{5} : 1\right]$

$= 2r^2[2 : 5]$

$= 2 : 5$

88. (A)



Area of the minor segment
= sector area OABO – area of Δ OAB

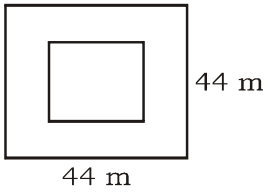
$= \frac{3.14\times10\times10\times90^o}{360^o} - \frac{1}{2}\times10\times10$

$= \frac{314}{4} - 50 = 78.5 - 50 = 28.5\ cm^2$

Area of the major segment
= area of circle – area of minor segment
= 3.14 × 10 × 10 – 28.5
= 314 – 28.5 = 288.5 cm^2

$\therefore$ Required difference = 285.5 – 28.5
= 257 cm^2

89. (C)



Total area of the square field
= (44 × 44)m^2 = 1936m^2
At the rate of Re. 1 per sq. mtr; the total cost would be Rs. 1936,
but the total cost = Rs. 3536
Difference = Rs. 3536 – Rs. 1936
= Rs. 1600

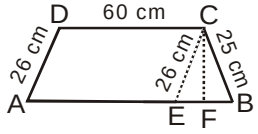
$\Rightarrow$ Rs. 1600 would be the extra cost on the flower bed and as the extra cost on the flower bed is Rs. 1 per sq. mtr.

$\Rightarrow$ Area of flower bed = 1600 sq. mtr.

$\Rightarrow$ Side of flower bed = $\sqrt{1600}\ m^2$
= 40 m

So, width of the gravel path = $\frac{44-40}{2}$
= 2 metre

90. (B)



$\square$ ABCD is a trapezium.
Draw CE || DA intersecting AB at E.
$\Rightarrow$ $\square$ ABCE is a ||gm.
$\Rightarrow$ DA = CE = 26 cm.
In Δ BCE

$S = \frac{17+25+26}{2} = \frac{68}{2} = 34$

ar(Δ BCE) = $\sqrt{34(34-17)(34-25)(34-26)}\ cm^2$
= $\sqrt{34\times17\times9\times8}$
= $\sqrt{2\times17\times17\times3\times3\times2\times2\times2}$
= 2 × 2× 3 × 17
= 204 cm^2

$\Rightarrow \frac{1}{2}\times BE \times height = 204$

or, $\frac{1}{2}\times17\times CM = 204$

$\Rightarrow CM = \frac{204\times2}{17} = 24$ cm

ar(Trap. ABCD) = $\frac{1}{2}\times(60+77)\times24$

$= \frac{1}{2}\times137\times24$

= 1644 sq. cm.

91.(C) Required number of persons = 450 +250 +150 + 75 + 50 +25 = 1000

92.(B) Required answer = 250+150 = 400

93.(C) Required ratio = 250 : 75 = 10 : 3

94.(B) Age group 15 - 20 $\Rightarrow \frac{450}{500} = \frac{9}{10}$

95.(D) Required percentage = $\frac{25}{500}\times100 = 5\%$

96. (D) Expenditure on clothing & miscellaneous = (20 + 30)% of 25000 = ` 12500

97. (C) Total expenditure = $\frac{15000}{(10+20)}\times100$
= ` 50,000

98. (D) $\because$ 360º = 100%

$\Rightarrow 54^o = \frac{54}{3.6}\% = 15\%$

and among the options the two items having difference of 15% (and hence 54º) are miscellanouns and Food

99. (B) Required % age = $\frac{15-10}{15}\times100\%$

$= \frac{1}{3}\times100\% = 33.33\%$

100. (D) $90^o = \frac{90}{3.6}\% = 25\%$

and among the options the two items making central angle of 90º, together, are travelling and eutertainment.

SSC MAINS (MATHS) MOCK TEST - 4 (ANSWER SHEET)

1.	(D)	21.	(C)	41.	(B)	61.	(B)	81.	(A)
2.	(C)	22.	(C)	42.	(D)	62.	(A)	82.	(C)
3.	(A)	23.	(A)	43.	(A)	63.	(A)	83.	(A)
4.	(A)	24.	(C)	44.	(A)	64.	(C)	84.	(A)
5.	(D)	25.	(A)	45.	(C)	65.	(C)	85.	(A)
6.	(A)	26.	(B)	46.	(B)	66.	(B)	86.	(C)
7.	(C)	27.	(D)	47.	(C)	67.	(B)	87.	(A)
8.	(*)	28.	(C)	48.	(D)	68.	(B)	88.	(A)
9.	(C)	29.	(B)	49.	(B)	69.	(B)	89.	(C)
10.	(A)	30.	(C)	50.	(A)	70.	(A)	90.	(B)
11.	(C)	31.	(A)	51.	(A)	71.	(C)	91.	(C)
12.	(B)	32.	(D)	52.	(A)	72.	(A)	92.	(B)
13.	(B)	33.	(D)	53.	(B)	73.	(A)	93.	(C)
14.	(C)	34.	(C)	54.	(D)	74.	(A)	94.	(B)
15.	(B)	35.	(A)	55.	(C)	75.	(B)	95.	(D)
16.	(A)	36.	(D)	56.	(C)	76.	(A)	96.	(D)
17.	(D)	37.	(A)	57.	(A)	77.	(A)	97.	(C)
18.	(A)	38.	(C)	58.	(A)	78.	(B)	98.	(D)
19.	(A)	39.	(B)	59.	(C)	79.	(B)	99.	(B)
20.	(C)	40.	(C)	60.	(B)	80.	(*)	100.	(D)