SSC TEST SERIES-6 ANSWERKEYS WITH SOLUTION

1	B	26	a	51	B	76	C	101	C	126	B	151	B	176	B
2	C	27	b	52	C	77	A	102	A	127	D	152	A	177	C
3	D	28	c	53	A	78	B	103	D	128	A	153	B	178	C
4	C	29	b	54	B	79	D	104	B	129	A	154	B	179	B
5	B	30	c	55	C	80	D	105	D	130	C	155	B	180	A
6	C	31	d	56	C	81	A	106	*	131	B	156	D	181	B
7	A	32	d	57	B	82	B	107	C	132	C	157	D	182	B
8	D	33	c	58	B	83	C	108	A	133	B	158	C	183	A
9	A	34	c	59	A	84	D	109	C	134	C	159	D	184	A
10	C	35	c	60	D	85	C	110	C	135	B	160	A	185	D
11	A	36	c	61	D	86	B	111	b	136	C	161	C	186	D
12	B	37	D	62	D	87	D	112	B	137	C	162	B	187	A
13	D	38	B	63	B	88	D	113	A	138	D	163	C	188	A
14	D	39	B	64	A	89	C	114	C	139	B	164	A	189	B
15	D	40	A	65	D	90	B	115	C	140	D	165	B	190	C
16	d	41	B	66	D	91	A	116	C	141	C	166	C	191	C
17	C	42	D	67	B	92	D	117	B	142	C	167	A	192	B
18	D	43	A	68	B	93	B	118	A	143	C	168	C	193	D
19	B	44	A	69	A	94	C	119	B	144	D	169	B	194	B
20	D	45	C	70	D	95	B	120	D	145	B	170	A	195	C
21	B	46	C	71	B	96	C	121	A	146	B	171	A	196	D
22	A	47	D	72	A	97	A	122	C	147	B	172	A	197	D
23	D	48	A	73	B	98	B	123	A	148	A	173	D	198	A
24	b	49	B	74	B	99	D	124	B	149	D	174	C	199	D
25	c	50	C	75	C	100	C	125	C	150	B	175	B	200	A

ENGLISH LANGUAGE

1. (B) Change 'very' into 'most'. If a conjunction joins two adjectives, both must be in the same degree.
2. (a) Remove 'most'. 'Perfect' a complete in meaning and hence cannot take comparative or superlative degree.
3. (b) Change 'noticed' into 'notice'. Now-a-days' shows that the sentence is in present tense.
4. (b) Change 'student' into 'students'. Here we are talking about 'one' of the students (plural countable noun)
5. (b) Change 'me' into'my' Gerund (talking) will be preceded by a possessive adjective.

12. Dissuade – dkb dke dju l jkduk

13. Naïve ---- ljy

14. Radiant – nhfIreku

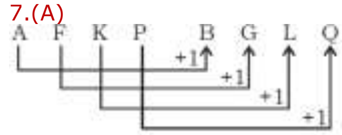
15. Prune – dkVuk] NkVuk

16. Flak – vkykpuk djuk

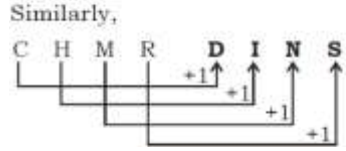
REASONING ABILITY

1. (B) 'Oval' is related to 'Circle' in the same way 'Rectangle' is related to **Square**.
2. (C) A cub is a young bear, and a joey is a young **kangaroo**.
3. (D) A **bracelet** is worn around the wrist, and a belt is worn around the waist.
4. (C) You enter and exit a highway by a ramp and you enter and exit a house by a **door**.
5. (B) A vamp is part of a shoe, and a hood is part of a **car**.
6. (C) A **haiku** is a type of poem, and a fable is a type of story.

7.(A)



Similarly,



8. (D) $\frac{18\times18}{2}=\frac{324}{2}=162$

SIMILARLY
36×36/2=1296/2=648

9. (A) 9536-6203=3333, SIMILARLY
?=5873-3333=2540

10. (C) Loss of memory is referred to as Amnesia. Similarly, loss of movem ent is referred to as Paralysis.

11. (A) 72 – 41 = 125
30 – 12 = 18
51 – 42 = 9
20 – 11 = 9
Except 125, the rest of the difference are one of the factor of 9.

12. (B) Except Nagpur, all are north indian cities.

13. (D) The number 125 is a perfect cube.
$5 \times 5 \times 5 = 125$

14.(d)

$F \xrightarrow{+3} I \xrightarrow{+2} K$

$M \xrightarrow{+3} G \xrightarrow{+2} I$

$M \xrightarrow{+3} P \xrightarrow{+2} R$

$K \xrightarrow{+3} N \xrightarrow{-10} D$

15. (D) The scientific study of the second is called the first in all the pairs except D.

16. (*) Read 'Stream' as 'Stem'.
Except (B), In others second is a part of first whereas chair and sofa are different types.

17. (C) Kennel is a shelter for a pet dog, stable is a shelter for horses. Den is a living place of lion. But lock is used for safety of a door.

18. (D) 5 + 2 = 7, 6 + 3 = 9, 2 + 4 = 6
But $3 + 5 = 8 \neq 6$

19.(b)

$W \xrightarrow{+5} B \xrightarrow{+9} K \xrightarrow{+6} Q \xrightarrow{+7} X \xrightarrow{+1} Y \xrightarrow{+7} F$

$\mathbf{W \xrightarrow{+2} Y \xrightarrow{+3} B \xrightarrow{+4} F \xrightarrow{+5} K \xrightarrow{+6} Q \xrightarrow{+7} X}$

$Y \xrightarrow{+3} B \xrightarrow{+15} Q \xrightarrow{+0} Q \xrightarrow{-11} F \xrightarrow{+2} H \xrightarrow{+6} N$

$W \xrightarrow{+3} Z \xrightarrow{+3} C \xrightarrow{+5} H \xrightarrow{+2} J \xrightarrow{+3} M \xrightarrow{+4} Q$

20. (d)

a **b** c / **c** b a / a b **c** / c b **a**

21. (b)

13 8 9 17 14 22
↓ ↓ ↓ ↓ ↓ ↓
M H I Q N V

1 12 7 5 2 18 1
↓ ↓ ↓ ↓ ↓ ↓ ↓
A L G E B R A

4 21 7 18 13 1
↓ ↓ ↓ ↓ ↓ ↓
D U G R M A

22.(a)

C A R → ↓ ↓ ↓ → $\varnothing$ α δ

S I T → ↓ ↓ ↓ → η ψ κ

W E L L → ↓ ↓ ↓ ↓ → σ i γ γ

M A P → ↓ ↓ ↓ → μ α β

So, γ α μ β → ↓ ↓ ↓ ↓ → **L A M P**

23.(d)
$5 \times 8 = 28 \rightarrow 5 \times 8 = 40 \rightarrow 5 + 8 = 13,$
$13 - 1 = 12 \rightarrow 40 - 12 = 28$
$3 \times 7 = 12 \rightarrow 3 \times 7 = 21 \rightarrow 3 + 7 = 10,$
$10 - 1 = 9 \rightarrow 21 - 9 = 12$
$8 \times 6 = 35 \rightarrow 8 \times 6 = 48 \rightarrow 8 + 6 = 14,$
$14 - 1 = 13 \rightarrow 48 - 13 = 35$
$13 \times 13 = ? \rightarrow 13 \times 13 = 169 \rightarrow 13 + 13 = 26,$
$26 - 1 = 25 \rightarrow 169 - 25 = 144$

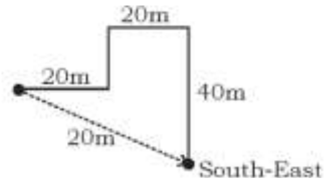
24. (B) $13 * 12 * 5 * 4 \rightarrow 13 = 12 + 5 - 4 = 17 - 4$

25. (C) $4 \times 8 + 3 = 32 + 3 = 35$
$7 \times 6 + 7 = 42 = 42 + 7 = 49$
$9 \times 8 + 9 = 72 + 9 =$ **81**

26. (A) $(7)^2 + (5)^2 + (3)^2 = 49 + 25 + 9 = 83$
$(6)^2 + (4)^2 + (2)^2 = 36 + 16 + 4 = 56$
$(8)^2 + (9)^2 + (1)^2 = 64 + 81 + 1 =$ **146**

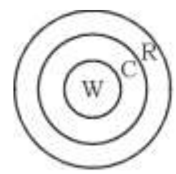
27. (B) $225/15 = 15 \rightarrow 15 \times 2 = 30$
$70/7 = 10 \rightarrow 10 \times 2 = 20$
$\frac{?}{8} = \frac{3}{2} = \rightarrow 2 \times ? = 8 \times 3$
$\therefore 24/2 = 12$

28. (c)



It is clear from the diagram that I am in south-east direction with respect to the original positon.

29. (b)



1. 3   2. 5

30. (c)
S E Q U E N C E
↓ ↓ ↓ ↓ ↓ ↓ ↓
H V J F V M X V
Opposite Letters
Similarly,
C H I L D R E N
↓ ↓ ↓ ↓ ↓ ↓ ↓
X S R O W I V M

31. (D) Only son of woman's grandfather means father of that woman.
Father of woman is the father of man's brother and hence father of that man.
Therefore, the woman is sister of the man in photograph.

32. (D) Suppose present age of Mrs. Lata = x years Present age of son = y years;
$x + y = 64$ ...(i)
According to the question, $x - 8 = 3(y - 8)$
$x - 8 = 3y - 24$ $x - 3y = -16$ ...(ii)
From equations (i) and (ii), y = 20;
Age of Mrs. Lata = 64 − 20 = 44 years

33. (C) $5 \times 2 + 1 = 11$
$11 \times 2 - 1 = 21$
$21 \times 2 + 1 = 43$
$43 \times 2 - 1 = 85$
$85 \times 2 + 1 = 171$

34. (D) $12 \times 2 + 3 = 27$
$27 \times 3 + 4 = 85$
$85 \times 4 + 5 = 345$
$345 \times 5 + 6 =$ **1731**

35.(c)

$A \xrightarrow{+3} D \xrightarrow{+3} G \xrightarrow{+3} J$

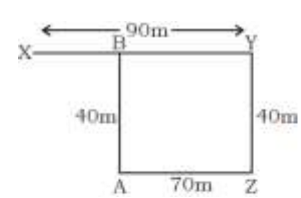
$Y \xrightarrow{-3} V \xrightarrow{-3} S \xrightarrow{-3} P$

$K \xrightarrow{+3} N \xrightarrow{+3} Q \xrightarrow{+3} T$

Similarly,

$O \xrightarrow{-3} L \xrightarrow{-3} I \xrightarrow{-3} F$

36.(c)

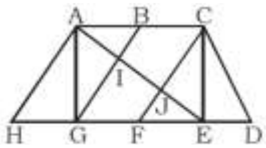


Required distance = XB = 90 − 70= 20 metre

37. (D) Comparing (i) and (iii) dice we have,

Top	3	**2**	1
Bottom	4	**5**	6

38. (B) Clearly, assumption I is implicit in the statement. It is mentioned that the values of an educated will differ from that of an uneducated person. It does not imply that an uneducated person will not have value.
39. (B) Some teachers may be writers and viceversa.
40. (A)
41. (B)
42. (D) The figure may be labelled as shown.

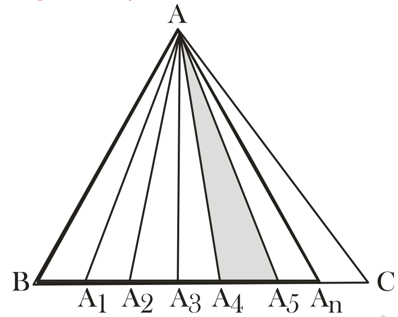


The simplest triangles are AHG, AIG, AIB, JFE, CJE and CED i.e. 6 in number. Triangles composed of two components each are ABG, CFE, ACJ and EGI i.e. 4 in number. Triangles composed of three components each are ACE, AGE and CFD i.e. 3 in number.There is only one triangle i.e. AHE composed of four components. Therefore, There are 6 + 4 + 3 + 1 = 14 triangles in the given figure.
43. (a)
44. (a)
45. (C) Let x and y be the ten's and unit's digits respectively of the numeral denoting the woman's age. Then, woman's age = (10x + y) years; husband's age = (10y + x) years.
Therefore
(10y + x) – (10x + y) = (1/11) (10y + x + 10x + y)
(9y – 9x) = (1/11) (11y + 11x) = (x + y)
10x = 8y x /y = 4/5
10x + y = 10 × 4 + 5 = 45
46. (C)
47. (D)
48. (A)
49. (B) L.C.M. of 6, 5, 7, 10 and 12 is 420.
So, the bells will ring together after every 420 seconds i.e. 7 minutes.Now, 7 × 8 = 56 and 7 × 9 = 63.
Thus, in 1 hour (or 60 minutes), the bells will toll together 8 times, excluding the one at the start.
50. (C)

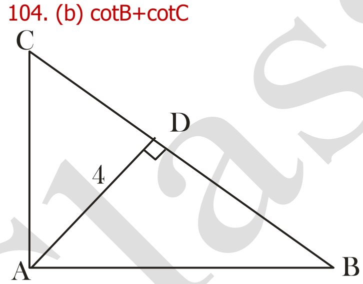
QUANTITATIVE APTITUDE

101. (C) $\because$ (x-1) is factor of $x^3 - ax^2 + 14x + b$
So x=1
$1^3 - a \times 1^2 - 14 \times 1 | b = 0$
$1 - a + 14 + b = 0$
$a - 5 = 15$.......................(ii)
So that (x-2) is also factor of $x^3 - ax^2 + 14x + b$
So, x=2.
$\Rightarrow\ 2^3 - A \times 2^2 + 14 \times 2 + b = 0$
$\Rightarrow\ 8 - 4a + 28 + b = 0$
$\Rightarrow$ 4a-b=36 ...(ii)
a–b =15 ...(i)
– + –
a=7, b=-8
102. (a) 1st term $\Rightarrow$ (b-a) = (b-a) (b-c+a)
=(b-a) {(b+a)-c}
$\Rightarrow$ (b-a) (b+a) – (b-a) c
$= b^2 - a^2 - bc + ac$ ...(i)
2nd term $\Rightarrow$ (c-b) y=(c-b) (c-a+b)
=(c-b) {(c+b)-a}
$\Rightarrow$ (c-b) (c+b) – (c-b) a
$= c^2 - b^2 - ca + ab$ ....(ii)
3rd term $\Rightarrow$ (a-c)z=(a-c) (a-b+c)
=(a-c) {(a+c) –b}
$\Rightarrow$ (a-c) (a+c) – (a-c) b
$= a^2 - c^2 - ab + bc$ ....(iii)

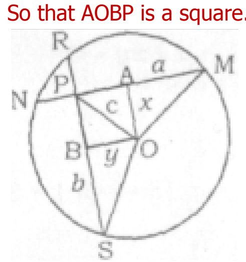
From (i), (ii) and (iii)
(b-a)x+(c-a) y+(a-c)z
$= b^2 - a^2 + c^2 - b^2 + a^2 - c^2 - bc + ac - ca + ab - ab + bc$ =0
103. (d) Total (n+1) triangles will be ormed whose base are same and height are equal



So that Area of Δ ABC = (n+1) ×Area of Δ AA_4A_5
= (n+1) ×K q. cm.
104. (b) cotB+cotC



$\Rightarrow \frac{BD}{4} + \frac{CD}{4}$ (in Δ ABD and ACD)
$\Rightarrow$ BD+CD/4=12/4=3 cm.
105. (d) $\sqrt{4a-9} + \sqrt{4x+9} = 5 + \sqrt{7}$
$\Rightarrow (\sqrt{4x-9} + \sqrt{4x+9})(\sqrt{4x-9} - \sqrt{4x+9})$
$= 4x - 9 - 4x - 9$
$\Rightarrow (5 + \sqrt{7})(\sqrt{4x-9} - \sqrt{4x+9}) = -18$
$\Rightarrow \sqrt{4x-9} - \sqrt{4x+9} = -\frac{18}{5+\sqrt{7}} \times \frac{5-\sqrt{7}}{5-\sqrt{7}}$
$\Rightarrow \sqrt{4x-9} - \sqrt{4x+9} = -\frac{18}{25..7}$
$\Rightarrow (4x-9) - \sqrt{4x+9} = -\frac{18(5-\sqrt{7})}{18}$
$\Rightarrow \sqrt{4x-9} - \sqrt{4x+9} = -(5-\sqrt{7})$ ....(i)
$\sqrt{4x-9} + \sqrt{4x+9} = (5+\sqrt{7})$ (given ...(ii)]
$2\sqrt{4x-9} = 2\sqrt{7}$
$\Rightarrow \sqrt{4x-9} = 7$
$\Rightarrow\ 4x - 9 = 7$
$\Rightarrow\ 4x = 16$
$\Rightarrow\ x = 4$
106. Let MN be 2a and RS be 2 b unit, and OA be x and OB be y unit
So that AOBP is a square.



So, AO=PB; OB=PA

In Δ OAM; $a^2 + x^2 = OM^2$....(i)

In Δ OBS; $b^2 + y^2 = OS^2$ ...(ii)

$OM^2 + OS^2 = a^2 + x^2 + b^2 + y^2$...(iii)

In Δ OPA; $x^2 + y^2 = c^2$ ....(iv)

$2\,OM^2 = c^2 + a^2 + b^2$

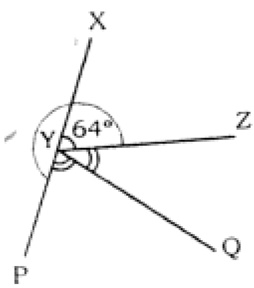
$OB = \sqrt{\dfrac{a^2 + b^2 + c^2}{2}}$

107. (c) Let the required side of triangle be x cm.

So, $\dfrac{x^2}{7^2} = \dfrac{256}{196}$

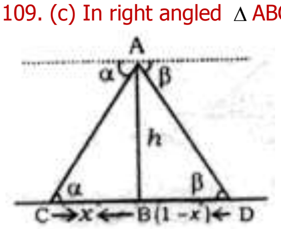
$\Rightarrow x^2 = \dfrac{256 \times 49}{196} = x = 8\,cm$

108. (a) $\angle XYZ + \angle ZYQ = \angle QYP = 180^\circ$



Or 64º+2 ∠ ZYQ=180 [ZYQ= ∠ QYP]
So that ZYQ=58º
∠ XYQ = ∠ XYZ+ ∠ ZYQ=64º+58º=122º

109. (c) In right angled Δ ABC



$\Rightarrow \tan\alpha = \dfrac{AB}{BC} = \dfrac{h}{x}$

$\Rightarrow$ x tan α = h or x = h/tan α

In right angled Δ ABD

$\Rightarrow$ tan β =AB/AD=h/1-x

$\Rightarrow$ h=tan β –x tan β

$\Rightarrow$ h=tan β - $\dfrac{h}{\tan\alpha}$ × tan β

$\Rightarrow h = \dfrac{\tan\alpha\tan\beta - h\tan\beta}{\tan\alpha}$

$\Rightarrow h\tan\alpha = \tan\alpha \times \tan\beta - h\tan\beta$

$\Rightarrow h(\tan\alpha + \tan\beta) = \tan\alpha.\tan\beta)$

$\Rightarrow h = \dfrac{\tan\alpha \times \tan\beta}{\tan\alpha + \tan\beta}$ km

110. (c) $\dfrac{A}{B} = \dfrac{4}{5}$

(A+B)'s 1 day work =9
(A+B)'s 7 day work =63
As given in 3 days 37% of the work is completed
So that total work =100
C's 3 day work =37 – (9×3)=10
C's 1 day work =10/3

A will complete the work = 100/4=25 days
B will complete the work =100/5=20 days

C will complete the work = $\dfrac{100}{\frac{10}{3}} = 30$ days

111. (b) $\dfrac{\sin^6\theta - \cos^6\theta}{\sin^2\theta - \cos^2\theta} = \dfrac{(\sin^2\theta)^3 - (\cos^2\theta)^3}{\sin^2\theta - \cos^2\theta}$

$\Rightarrow \dfrac{(\sin^2\theta - \cos^2\theta)(\sin^4\theta + \cos^4\theta + \sin^2\theta.\cos^2\theta)}{\sin^2\theta - \cos^2\theta}$

$\sin^4\theta + \cos^4\theta + 2\sin^2\theta.\cos^2\theta - \sin^2\theta.\cos^2\theta$

$(\sin^2\theta + \cos^2\theta)^2 - \sin^2\theta.\cos^2\theta$

112. (b) Let the speed of A be x km/hrs and B be y km/hrs.

$\dfrac{60}{x - y} = 6$

x-y=10 ...(i)
ATQ,

$\dfrac{60}{2x - 2y} = 5$

$\dfrac{2x - 6y}{3} = 12$

$\Rightarrow 2x - 6y = 36$ ....(ii)

6x-6y=60 ....(iii)
– + –

-4x = - 24
X=6 km/hrs.

113. (a) Let the number of men of the beginning be x

$m \times m \times m \times x = n \times n \times n \times m$

$x = \dfrac{n^3 \times m}{m^3}$

$x = \dfrac{n^3}{m^2}$

14. (c) Required number = HCF of (260-7) (270-7) and (145-7)
= HCF of 253, 713 and 138 =23.

115. (d) Given values are odd numbers then its common factor = (41+43)=84

116. (c) Percentage growth = $\left(\dfrac{1}{8} \times 100\right)\% = 12.5\%$

Height after two years =64× $\left(1 + \dfrac{12.5}{100}\right)$

$= 64 \times \dfrac{9}{8} \times \dfrac{9}{8} = 81\,cm$

117. (b) required days = $\dfrac{800 \times 6}{240} = 20$ days

118. (a) Let the sum be Rs. P

$SI = \dfrac{Pr \times 3}{100} = \dfrac{3Pr}{100}$

CI=P $\left[\left(1 + \dfrac{r}{100}\right)^3 - 1\right]$

$= P\left[1 + \dfrac{r^3}{100^3} + \dfrac{3r^2}{100^2} + \dfrac{3r}{100} - 1\right]$

$P\left[\dfrac{r^3}{100^3} + \dfrac{3r^2}{100^2} + \dfrac{3r}{100}\right]$

SI-SI $=P\left[\frac{r^3}{100^3}+\frac{3r^2}{100^2}+\frac{3r}{100}\right]-\frac{3Pr}{100}$

$x=P\left[\frac{r^3}{100^3}+\frac{3r^2}{100}\right]$

$P\left(\frac{r^2}{100^3}\right)(r+300)$

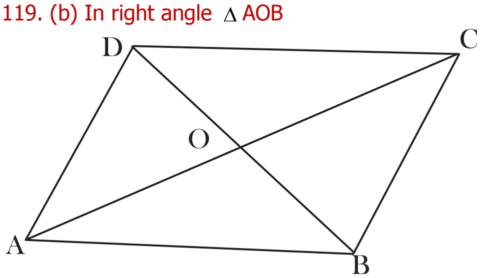
$P=\frac{r(100)^3}{r^2(r+300)}$

Here, x Rs.608 (given) and r4% per annum

$P=\frac{608\times100\times100\times100}{4\times4\times(4+300)}$

P=Rs. 1,25,000

119. (b) In right angle Δ AOB



$AB^2=AO^2+OB^2=5^2+12^2$

So, AB=13cm.

120. (d) capacity of cask $=\frac{6}{1-\left(\frac{121}{144}\right)^{1/2}}$

$=\frac{6}{1-\left(\frac{11}{12}\right)^{1\times\frac{1}{2}}}$

$=\frac{6}{1-\frac{11}{12}}=\frac{6}{\frac{1}{12}}=72\,\text{litres}$

121. (a) $\sqrt{(x-1)^2}+\sqrt{(x-3)^2}$

$\Rightarrow x-1+x-3$

$\Rightarrow 2x-4$

$\because 1<x<2$

122. (c) Maximum value of $\sin^6\theta+\cos^6\theta=1$

123. (a) 20 pieces $\rightarrow$ (3+x) min

60 pieces $\rightarrow$ (8-3-x) min

$\frac{20}{3+x}+\frac{60}{5-x}=20$

5-x+9+3x=15-3x+5x $-x^2$

14+2x=15+2x- x^2

$x^2=1$

x=1

20 pieces $\rightarrow$ 4 min

160 pieces $\rightarrow$ 32 min.

124. (b)

Let side of cbe =a

Radius of sphere =r

Diagonal of cube= diameter of sphere $a\sqrt{3}=2r$

$a=\frac{2r}{\sqrt{3}}$

Volume of cube $=a^3=\left(\frac{2r}{\sqrt{3}}\right)^3=\left(\frac{2}{\sqrt{3}}\right)^3.r^3$

125. (c) Let the CP of the article br Rs. 100 and its SP be x.

$\frac{100-x}{100}\times100=\frac{2x-100}{100}\times100$

$100-x=2x-100$

$3x=200$

$x=\frac{200}{3}$

Loss% = 100- $\frac{200}{3}$

100/3=33 $\frac{1}{3}$%

126. (b) Let the CP of article =100%

SP of article =120%

ATQ,

120% -100=(100%-100) $\frac{124}{100}$

4%=24

100% = $\frac{24}{4}\times100$

CP = Rs. 600

127. (d) Let the marked price be x

CP= $\frac{13}{15}$x

SP = $\frac{112}{100}$x

So that Profit = $\frac{112x}{100}-\frac{13x}{15}$

$\frac{336x-260x}{300}=\frac{76}{300}x$

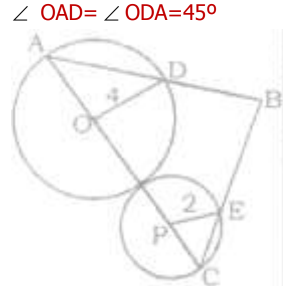
Profit % = $\frac{76}{300}\times\frac{15}{13x}\times100$

$=\frac{380}{13}\%$

$=29\frac{3}{13}\%$

128. (a)

$\angle$ OAD= $\angle$ ODA=45º



$\angle$ PCE= $\angle$ PEC=45º

$\angle$ ABC=180º-(45+45)=90º

AB=CB

In Δ ABC

$12^2=\sqrt{AB^2+CB^2}$

$144=\sqrt{AB^2+AB^2}$

$AB=\frac{\sqrt{144}}{\sqrt{2}}$ cm

$=\frac{12}{\sqrt{2}}$ cm

Area of Δ ABC = $\frac{1}{2}\times\frac{12}{\sqrt{2}}\times\frac{12}{\sqrt{2}}=36$ sq. cm.

129. (a) $x^2 -$ (sum of roots) x (produt of roots) =0

$3x^2 + 4x + 2 = 0$

$x^2 + \frac{4}{3}x + \frac{2}{3} = 0$

Sum of roots =4/3
Product of roots =2/3
So, X does not have any real roots.

130. (c) Vale of cos θ - sin θ = $\sqrt{2-m^2}$

131. (b) investment ratio in terms of one month or of their equivalent capitals

A:B:C = $\left\{(50,000\times4)+\left(\frac{50,000}{2}\times8\right)\right\}$

$\left\{(45,000\times8)+\left(\frac{45,000}{2}\times4\right)\right\}:(70,000\times4)$

=400000 : 450000 : 280000
=40:45: 28

132. (c) distance travelled till 9 am =60 km

Required time =9 am + $\frac{270}{60+75}$hrs

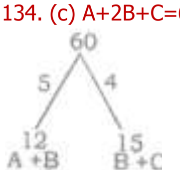
9am+$\frac{270}{135}$hrs

9am+2 hours =11 am.

133. (b) CP of the article = $\frac{700\times100}{140} = 500$

New selling price $= \frac{500\times110}{100} = 550$

134. (c) A+2B+C=60/9 days



A=2C (given)
2C+2B+C=9 unit
C=(9-8) unit work =1 unit

$B = \frac{60}{4-1}$

=60/3 days
20 days.

135. (b) Let the CP be Rs. 100, The SP = Rs. 120
Let the marked price be x.
Then 90% of x = Rs. 120

$x = \frac{120\times100}{90}$

$\frac{40}{3}\%$

$= 133\frac{1}{3}\%$

So, it is $33\frac{1}{3}\%$ higher than the CP.

136. (c) Let radius of hemisphere = height of cylinder = r units
Volume of hemisphere / volume cylinder =1

$\frac{\frac{2}{3}\pi r^3}{\pi r_1^2 r} = 1$

$\frac{r^2}{r_1^2} = \frac{3}{2}$

$r : r_1 = \sqrt{3} : \sqrt{2}$

137. (c) Let radius of circle be x cm, sie of square be y cm and side of equilateral triangle be z cm.
ATQ, 2 π x=4y=3z

$x = \frac{4y}{2\pi} = \frac{2y}{\pi} \Rightarrow z = \frac{4y}{3}$

Area of circle C = $\pi x^2 = \pi\times\frac{4}{\pi^2}y$

$= \frac{4}{\pi}y^2 > y^2$

Area of square 'S' = y^2

Area of triangle 'T' = $\frac{\sqrt{3}}{4}z^2$

$\frac{\sqrt{3}}{4}\times\frac{4\times4}{3\times3}y^2 = \frac{4}{3\sqrt{3}}y^2$

Or, $\frac{4}{3\sqrt{3}} < y^2$

So that T<S<C

138. (d) Distance covered = $66\times\frac{5}{2}$

2 π r=165 metre

$r = \frac{165\times7}{2\times22} = 26.25$ metre

139. (b) As given 3M=5W ..(i)
2W=3C

So that $2\times\frac{3}{5}M = 3C$ … (from eq. (i)

2M=5C
Now, $M_1D_1W_2 = M_2D_2W_1$
(20M+30W+75C) ×60×3/4

$[(20+x)M+25C)\times85\times\frac{1}{4}$

(20M+18W+75C)×60× $\frac{3}{4}$

=[(20+x)M+10M)×85× $\frac{1}{4}$

68M+45=(30+x)M×85× $\frac{1}{4}$

(30+x)=144
X=114

140. (d) ATQ, $\pi\ m^2H = \frac{1}{3}\pi r^2h$

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

141. (c) Total number of boys in school T= $1250\times\frac{60}{100}$ =750

142. (c) required number of boys

$= \frac{2500\times\frac{60}{100}+3000\times\frac{55}{100}}{2} = \frac{1500+1650}{2}$

$\frac{3150}{2} = 1575$

143. (c) required ratio = $2500\times\frac{40}{100} : 3000\times\frac{45}{100}$

144. (a) Required average

$= \frac{2500+3000+2000+2250+1250+1000}{6}$

$= \frac{12000}{6} = 2000$

145. (d) total girl student in all schools

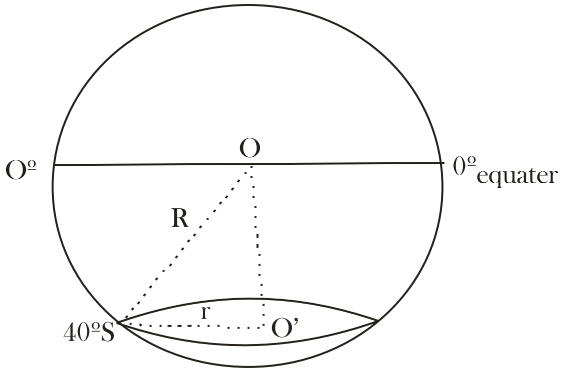
$= 2500 \times \frac{40}{100} + 3000 \times \frac{45}{100} + 2000 \times \frac{27.5}{100}$

$+ 2250 \times \frac{32.5}{100} + 1250 \times \frac{40}{100} + 1000 \times \frac{12.5}{100}$

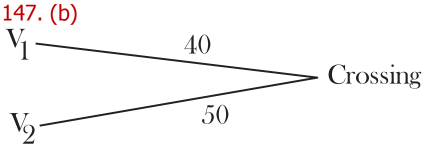
$= 1000 + 1350 + 540 + 675 + 500 + 125$

Required percentage = $\frac{4190}{12000} \times 100 = 34.90\%$

146. (b) Let radius of that circle be r.



Cos 40º=r/R
So that r=R cos 40º
147. (b)



Let the time taken be equal

$\frac{40}{V_1} = \frac{50}{V_2}$, then they will collide i.e., cars will rach at the same time

So that $\frac{V_1}{V_2} \neq \frac{40}{50} = \frac{4}{5}$

148. (a) Let the polynomial be p(x) then by remainder theorem p(2)=1 and p(3)=2.

$x^2 - 5x + 6 = 0$

$x^2 - 3x - 2x + 6 = 0$

$(x-3)(x-2) = 0$

Let p(x)=h (x) (x-2) +ax+b
P(2)=0+2a+b
1=0+2a+b
Or 1=2a+b …(i)
P(3)=0+3a+b
2=3a+b …(ii)
Subtracting (i) from (ii)
a=1, b=-1.
Hence, required remainder ax+b=x-1
149. (d) Let milkman purchased x liter
ATQ, 50x+2000=60x-1500
10x=3500 litre; x=350 litres
150. (b) CP SP

1st $\frac{180}{80} = \frac{5}{4} \Rightarrow 4 \times 6 = 24$ $5 \times 6 = 30$

IInd $\frac{120}{100} = \frac{6}{5} \Rightarrow 5 \times 5 = 25$ $6 \times 5 = 30$

$30 \xrightarrow{\times 60} 1800$

Difference $\Rightarrow$ 25-24 =1

$1 \xrightarrow{\times 60} \text{Rs.}60$