

THIRD InTRa SchOol MaTHEMaTICS oF yMplAD 2012

CLASS VIII

Solutions

(SECTION – A)

Ans. 1 (B) Rani → R, Divya → D, Rahul → Ra  
 RDRa, RRaD, DRRa, DRaR, RaRD, RaDR  
 = 6

Ans.2 (D)  $\square + \bigcirc = 8$ ,  $2\bigcirc + \square = 11$   
 $\square = 8 - \bigcirc$ ,  $2\bigcirc + 8 - \bigcirc = 11$   
 $\bigcirc + 8 = 11$   
 $\bigcirc = 11 - 8$   
 $\bigcirc = 3$

Then  $\bigcirc + \triangle + \triangle = 15$   
 $3 + 2\triangle = 15$   
 $2\triangle = 15 - 3$   
 $2\triangle = 12$   
 $\triangle = 6$

Ans. 3 (E) Possible whole numbers less than 1000 end with 77 are  
 $(77)$ , 177, 277, 377, 477, 577, 677,  $(777)$ , 877, 977 =  $(10)$   
 Possible whole numbers less than 1000 that begin with 77 are  
 $(77)$ , 770, 771, 772, 773, 774, 775, 776,  $(777)$ , 778, 779 =  $(11)$   
 $10 + 11 - 2 = 21 - 2 = (19)$

Ans. 4 (E)  $\frac{4}{2 - \frac{1}{4}} = 2.29$  (app.)  
 $\frac{4}{2 + \frac{1}{4}} = 1.78$  (app.)  
 $\frac{4}{2 - \frac{1}{3}} = 2.4$

$$\frac{4}{2 + \frac{1}{3}} = 1.74 \text{ (app.)}$$

$$\frac{4}{2 - \frac{1}{2}} = 2.67 \text{ (app.)}$$

Ans. 5 (A) B = 0.4, C = 0.6  
 B x C = 0.24 = 0.2 (app.)  
 Pt. A = 0.2

Ans. 6 (A) 4 : 44 - 3 : 33 = 1 : 11 = 1 hr 11 min.  
 In minutes = 60 + 11 = 71 min.

Ans. 7 (E) As 21 = mean  
 Smallest of these 5 integers must be < 21

Suppose it is 20

$$\text{Mean} = \frac{20 + 21 + 22 + 23 + 24}{5} = 22$$

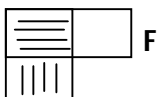
∴ Smallest must be less than 20

Suppose it is 19.

$$\text{Mean} = \frac{19 + 20 + 21 + 22 + 23}{5} = 21$$

∴ smallest = 19

Ans. 8 (B) 
$$\begin{aligned} \sqrt{41 - \sqrt{21 + \sqrt{19 - 3}}} &= \sqrt{41 - \sqrt{21 + 4}} \\ &= \sqrt{41 - \sqrt{25}} \\ &= \sqrt{41 - 5} = \sqrt{36} = 6 \end{aligned}$$

Ans. 9 (C) 

Ans. 10 (D) 
$$\begin{aligned} 10^x - 10 &= 9990 \\ 10^x &= 9990 + 10 \\ &= 10,000 \\ &= 10^4 \end{aligned}$$

$$x = 4$$

Ans. 11 (C)  $x = 0, y = 7 \Rightarrow y - x = 7 - 0 = 7$

Ans. 12 (D) John + Bipasha =  $\frac{1}{4} + \frac{3}{10} = \frac{11}{20}$

Remained =  $1 - \frac{11}{20} = \frac{9}{20}$

Next day, Priyanka ate  $\frac{2}{3}$  of the pie that remained.

=  $1 - \frac{2}{3} = \frac{1}{3}$  of the pie that was remained.

$\therefore \frac{1}{3}$  of  $\frac{9}{20}$  or  $\frac{3}{20}$

Ans. 13 (A)

+ 1	- 6	- 1	= y
- 4	- 2	0	
- 3	2	- 5	

Ans. 14 (D)  $24 \times 7 \times 60 \times 60$

Ans. 15 (A) Area =  $\frac{1}{2} \times d_1 \times d_2$

$28 = \frac{1}{2} \times 4 \times d_2$

$d_2 = 14$

AO = 7

By Py. Th.

$7^2 + 2^2 = 49 + 4 = \sqrt{53}$

Perimeter =  $4 \sqrt{53}$

**(SECTION – B)**

Ans. 16      **A**      1 day work =  $\frac{1}{80}$

10 day work =  $\frac{1}{80} \times 10 = \frac{1}{8}$ <sup>th</sup>

**B**      did  $\frac{7}{8}$ <sup>th</sup> work in 42 days

1 work =  $42 \times \frac{8}{7} = 48$  days

$$\text{So, 1 day work} = \frac{1}{48}$$

$$A + B = \frac{1}{80} + \frac{1}{48} = \frac{1}{30}$$

∴ A & B complete in 30 days.

Ans. 17 Let speed of the boat in still water be  $x$  km / hr.

The speed downstream =  $(x + 2)$  km / hr

The speed upstream =  $(x - 2)$  km / hr

A.T.Q.  $4(x + 2) = 5(x - 2)$

$$4x + 8 = 5x - 10$$

$$8 + 10 = 5x - 4x$$

$$18 = x$$

$$= 18 \text{ km / hr}$$

Ans.18 Arc of  $\Delta CDE = 10 \text{ cm}^2$

$$\text{Area} = \frac{1}{2} \times 5 \times h$$

$$\frac{20}{5} = h \quad h = 4 \text{ cm}$$

$$\text{Area of trap. ABCE} = \frac{1}{2}(6 + 11) \times 14$$

$$= \frac{1}{2} \times (17) \times 14$$

$$= 34 \text{ cm}^2$$

Ans.19  $2P = P \left( 1 + \frac{R}{100} \right)^3$

$$2 = \left( 1 + \frac{R}{100} \right)^3$$

$$2^{1/3} = 1 + \frac{R}{100} \quad \dots\dots\dots (1)$$

Suppose the money becomes 16 times in  $x$  years

$$16P = P \left( 1 + \frac{R}{100} \right)^n$$

$$16^{1/n} = 1 + \frac{R}{100} \quad \dots\dots\dots (2)$$

From (1) and (2)

$$2^{\frac{4}{n}} = 2^{\frac{1}{3}}$$

$$\Rightarrow \frac{4}{n} = \frac{1}{3}$$

$$= n = 12$$

Ans.20 Let original edge be 'a'

$$\text{S.A.} = 6a^2$$

$$\text{New edge} = \frac{125}{100}a = \frac{5}{4}a$$

$$\text{New S.A.} = 6 \times \left(\frac{5}{4}a\right)^2 = \frac{75}{8}a^2$$

$$\text{Increase in S.A.} = \left(\frac{75}{8}a^2 - 6a^2\right)$$

$$= \frac{27}{8}a^2$$

$$\text{Percentage increase} = \left(\frac{27}{8}a^2 \times \frac{1}{6a^2} \times 100\right)\%$$

$$= 56.25\%$$

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Ans. 1 (B)

Ans. 2 (D)

Ans. 3 (E)

Ans. 4 (E)

Ans. 5 (A)

Ans. 6 (A)

Ans. 7 (E)

Ans. 8 (B)

Ans. 9 (C)

Ans. 10 (D)

Ans. 11(C)

Ans. 12 (D)

Ans. 13(A)

Ans. 14 (D)

Ans. 15 (A)