# Set – II

**1.** The value of

$$\frac{1}{1+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{4}}+\frac{1}{\sqrt{4}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{6}}+\frac{1}{\sqrt{6}+\sqrt{7}}+\frac{1}{\sqrt{7}+\sqrt{8}}+\frac{1}{\sqrt{8}+\sqrt{9}} \text{ is}$$

(a) 0 (b) 1

(c) 2 (d) 4

Sol : (c)

$$\frac{1}{1+\sqrt{2}}=\frac{1}{1+\sqrt{2}}\times\frac{1-\sqrt{2}}{1-\sqrt{2}}=\frac{1-\sqrt{2}}{(1)^2-(\sqrt{2})^2}=\frac{1\sqrt{2}}{1-2}=\frac{1-\sqrt{2}}{-1}=\left(\sqrt{2}-1\right)$$

Similarly $\frac{1}{\sqrt{2}+\sqrt{3}}=\frac{\sqrt{2}-\sqrt{3}}{-1}=\sqrt{3}-\sqrt{2}$

and so on, we get

$$\left(\sqrt{2}-1\right)+\left(\sqrt{3}-\sqrt{2}\right)+\left(\sqrt{4}-\sqrt{3}\right)+\left(\sqrt{5}-\sqrt{4}\right)+\left(\sqrt{6}-\sqrt{5}\right)+\left(\sqrt{7}-\sqrt{6}\right)+\left(\sqrt{8}-\sqrt{7}\right)+\left(\sqrt{9}-\sqrt{8}\right)$$

= 3 – 1 = 2

**2.** If $\sqrt{5}$ = 2.236 and $\sqrt{10}$ = 3.162, then the value of

$$\frac{15}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}} \text{ is}$$

(a) 5.398 (b) 4.398

(c) 3.398 (d) 6.398

Sol : (a)

$$\frac{15}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$$

$$\frac{15}{\sqrt{10}+2\sqrt{5}+2\sqrt{10}-\sqrt{5}-4\sqrt{5}}$$

$$\frac{15}{3\sqrt{10}-3\sqrt{5}}$$

$$\frac{15}{3(\sqrt{10}-\sqrt{5})} = \frac{5}{\sqrt{10}-\sqrt{5}} \times \frac{\sqrt{10}+\sqrt{5}}{\sqrt{10}+\sqrt{5}}$$

$$= \frac{5(\sqrt{10}+\sqrt{5})}{\left(\sqrt{10}\right)^2-\left(\sqrt{5}\right)^2}$$

$$= \frac{5\left(\sqrt{10}+\sqrt{5}\right)}{(10-5)}$$

$$= \sqrt{10}+\sqrt{5} \;=\; 2.236 \;+\; 3.162$$

$$= 5.398$$

**3.** If $x = \frac{\sqrt{3}+1}{2}$, then $x^3 + \frac{1}{x^3} =$

(a) 216 (b) 198

(c) 192 (d) 261

Sol : No Answer.

Question aborted and zero marks will be awarded in all conditions.

**4.** If $4^{44} + 4^{44} + 4^{44} + 4^{44} = 4^x$, then x is

(a) 45 (b) 44

(c) 176 (d) 11

Sol : (a)

$4^{44} + 4^{44} + 4^{44} + 4^{44}$

$= 4^{44} + [1 + 1 + 1 + 1]$

$= 4^{44} \cdot 4^1$

$= 4^{45} \;\Rightarrow\; x = 45$

**5.** If $2x = t + \sqrt{t^2+4}$ and $3y = t - \sqrt{t^2+4}$, then value of y when x = 2/3, is

(a) – 2 (b) 1

(c) – 1 (d) 2

Sol : (c)

$2x = t + \sqrt{t^2+4}$

$\frac{4}{3}=t+\sqrt{t^2+4}$

$4 = 3t + 3\sqrt{t^2+4}$

$4 - 3t = 3\sqrt{t^2+4}$

$(4 - 3t)^2 = 9\ (t^2 + 4)$

$16 + 9t^2 - 24t = 9t^2 + 36$

$- 24t = 36 - 16 = 20$

$t = \frac{20}{-24} = \frac{5}{-6}$

Now,

$3y = \frac{-5}{6} - \sqrt{\frac{25}{36}+4}$

$= \frac{-5}{6} - \sqrt{\frac{169}{36}}$

$= \frac{-5}{6} - \frac{13}{6} = -\frac{18}{6}$ $3y = - 3$ ,$y = -1$.

**6.** If $x + y = 5$ and $x^2 + y^2 = 111$, then value of $x^3 + y^3$ is

(a) 770 (b) 227

(c) 555 (d) 115

Sol :(a)

$x^2 + y^2 = (x + y)^2 - 2xy$.

$111 = (5)^2 - 2xy$

$2xy = 25 - 111 = -86$

$xy = -43$.

$x^3 + y^3 = (x + y)\ (x^2 + y^2 - xy)$

$= (5)\ (111 - (-43))$

$= 5\ (111 + 43)$ $= 5\ (154)$ $= 770$

**7.** The remainder when the polynomial $p(x) = x^{100} - x^{97} + x^3$ is divided by $x + 1$ is

(a) 1 (b) 22

(c) 3 (d) 4

Sol : (a)

$p(x) = x^{100} - x^{97} + x^3$ is divided by $x + 1$

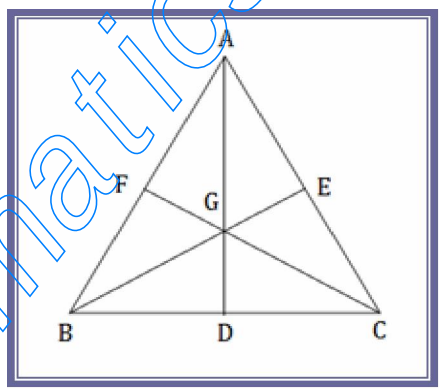
using reminder then,

Remainder $= p(-1)$

$= (-1)^{100} - (-1)^{97} + (-1)^3$

$= 1 - (-1) + (-1) = 1 + 1 - 1 = 1$

**8.** In $\Delta ABC$, the medians AD, BE and CF meet at G, then




(a) $4(AD + BE + CF) > 3(AB + BC + AC)$

(b) $3(AD + BE + CF) > 2(AB + BC + AC)$

(c) $3(AD + BE + CF) > 4(AB + BC + AC)$

(d) $2(AD + BE + CF) > 3(AB + BC + AC)$

Sol : (a)

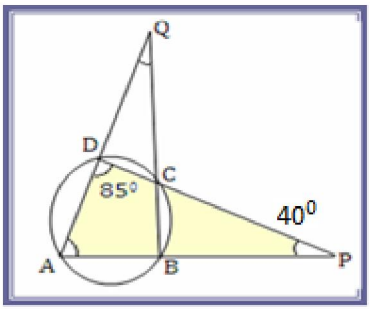
**9.** The point of concurrency of the perpendicular bisectors of a triangle is called

(a) Incentre (b) Orthocentre

(c) Circumcentre (d) Centroid

Sol : (C)

**10.** Two sides AB and CD of a cyclic quadrilateral ABCD are produced to meet at P. The sides AD and BC are produced to meet at Q. If $\angle ADC = 85^0$ and $\angle BPC = 40^0$ then $\angle BAD$ and $\angle CQD$ are




(a) $55^0, 30^0$ (b) $50^0, 40^0$

(c) $40^0, 30^0$ (d) $45^0, 30^0$

Sol : (a)

In $\Delta$ PAD

$\angle PAD + \angle ADP + \angle DPA = 180^o$ (Angle sum property)

$\angle PAD + 85^o + 40^o = 180^o$

$\angle PAD = 180^o - 125^o = 55^0$

i.e. $\angle BAD = 55^o$

**11.** The mean of first five prime numbers is

(a) 3.0 (b) 3.6

(c) 5.6 (d) 7

Sol : (c)

2, 3, 5, 7, 11

Mean = $\frac{2+3+5+7+11}{5} = \frac{28}{5} = 5.6$

**12.** A man is three years elder than his wife and four times as old as his son. If the son shall attain an age of fifteen years after three years, what is the present age of his mother ?

(a) 60 years (b) 51 years

(c) 48 years (d) 45 years

Sol: (d)

Let Mother's age = x years

Man's age = x + 3 years

Age of sons = 15 – 3 = 12 years.

ATQ, Age of Man = 4(12) = 48.

and 48 = x + 3 $\Rightarrow$ x = 45 years.

**13.** If seventh day of a month is three days earlier than Friday, what day will it be on nineteenth day of the month?

(a) Sunday (b) Monday

(c) Wednesday (d) Friday

Sol : (a)

Seventh day is Tuesday

$\Rightarrow$ $14^{th}$ day is Tuesday

$21^{th}$ day is Tuesday

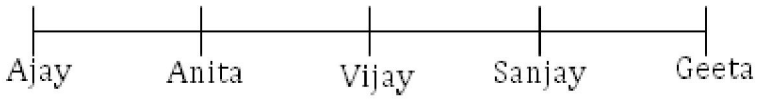
$\therefore$ $19^{th}$ day is Sunday.

**14.** Some friends are sitting on a bench. Vijay is sitting next to Anita and Sanjay is next to Geeta .Geeta is not sitting with Ajay. Ajay is on the left end of the bench and Sanjay is in second position from right hand side. Vijay is on the right side of Anita and to the right side of Ajay, Vijay and Sanjay are sitting together .Who is sitting in the centre?

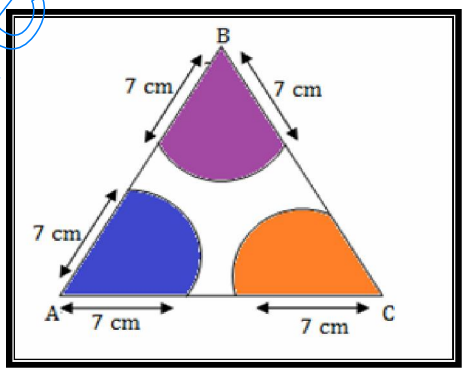
(a) Ajay (b) Vijay

(c) Geeta (d) Sanjay

Sol : (b)




**15.** The area of shaded region if each region is a sector of radius 7cm is




(a) $77 m^2$ (b) $49\ cm^2$

(c) $60\ cm^2$ (d) none of these

Sol : (a)

$$\text{Area} = \frac{\theta_1}{360}\pi 7^2 + \frac{\theta_2}{360}\pi 7^2 + \frac{\theta_3}{360}\pi 7^2$$

$$= \frac{\pi.7^2}{360}[\theta_1 + \theta_2 + \theta_3] \qquad (\text{For triangle } \theta_1 + \theta_2 + \theta_3 = 180)$$

$$= \frac{\pi.7^2}{360} \times 180 = \frac{22}{7} \times \frac{7 \times 7}{2} = 77$$

**16.** If the sum of the zeros of the polynomial $f(x) = 2x^3 - 3kx^2 + 4x - 5$ is 6, then the value of k is

(a) 2 (b) 4

(c) –2 (d) – 4

Sol : (b)

Let the zeros of f(x) are $\alpha, \beta, \gamma$

$$\alpha, \beta, \gamma = \frac{-b}{a} = -\left(\frac{-3k}{2}\right)$$

$$6 = \frac{3k}{2}$$

$$\frac{12}{13} = k$$

$$k = 4$$

**17.** If $y = x + \frac{1}{x}$, then $x^4 + x^3 - 4x^2 + x + 1 = 0$ becomes

(a) $(y^2 + y - 6) = 0$ (b) $(y^2 + y - 2) = 0$

(c) $(y^2 + y - 3) = 0$ (d) $(y^2 + y - 4) = 0$

Sol : (a)

$$\therefore \quad \text{by } x^2 \; x^2 + x - 4 + \frac{1}{x} + \frac{1}{x^2} = 0.$$

$$\left(x^2 + \frac{1}{x^2}\right) + \left(x + \frac{1}{x}\right) - 4 = 0.$$

$$x + \frac{1}{x} = y$$

$$\left(x + \frac{1}{x}\right)^2 = y^2 \rightarrow x^2 + \frac{1}{x^2} + 2 = y^2$$

$$x^2 + \frac{1}{x^2} = \left(y^2 - 2\right)$$

Put in (1)

$(y^2 - 2) + y - 4 = 0 \rightarrow y^2 + y - 6 = 0$

**18.** A convex polygon has 44 diagonals. The number of its sides is

(a) 10 (b) 11

(c) 12 (d) 13

Sol : (b)

$^{n}C_2 - n = \frac{n(n-1)}{2} - n$

No. of diagonal. = $\frac{n(n-1)-2n}{2}$

$44 = \frac{n^2 - n - 2n}{2}$

$88 = n^2 - 3n$

$88 = n(n-3)$

$88 = 11 \times 8 = 11\,(11-3)$

$\therefore \quad n = 11$

**19.** If $x - k$ divides $x^3 - 6x^2 + 11x - 6 = 0$, then k can't be equal to

(a) 1 (b) 2

(c) 3 (d) 4

Sol : (d)

$\rightarrow$ x = k is zero of polynomial

Now put k = 1

$1^3 - 6(1)^2 + 11(1) - 6 = 0$

$1 - 6 + 11 - 6 = 0$

$0 = 0$

k = 2

$(2)^3 - 6(2)^2 + 11 \times 2 - 6 = 0$

$8 - 24 + 22 - 6 = 0$

$2 - 2 = 0$

k = 3

$(3)^3 - 6(3)^2 + 11 \times 3 - 6 = 0$

$27 - 54 + 33 - 6 = 0$

$21 - 21 = 0$

k = 4

$(4)^3 - 4(4)^2 + 11 \times 4 - 6 = 0$

$64 - 96 + 44 - 6 = 0$

$56 - 42 = 0$

$k = 14$

**20.** The sum of n term of the series

$$\frac{1}{\sqrt{3}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{7}}+\frac{1}{\sqrt{7}+\sqrt{9}}+\ldots\ldots \text{ is}$$

(a) $\sqrt{2n+3}$ (b) $\frac{\sqrt{2n+3}}{2}$

(c) $\sqrt{2n+3}-\sqrt{3}$ (d) $\frac{\sqrt{2n+3}-\sqrt{3}}{2}$

Sol : (d)

$$\frac{1}{\sqrt{3}+\sqrt{5}}\times\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}+\frac{1}{\sqrt{5}+\sqrt{7}}\times\frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}+\sqrt{5}}+\frac{1}{\sqrt{7}+\sqrt{9}}\times\frac{\sqrt{9}-\sqrt{7}}{\sqrt{9}-\sqrt{7}}\ldots\ldots\ldots$$

$$\Rightarrow\frac{\sqrt{5}-\sqrt{3}}{5-3}+\frac{\sqrt{7}-\sqrt{5}}{7-5}+\frac{\sqrt{9}-\sqrt{7}}{9-7}\ldots\ldots\frac{1}{\sqrt{2n+3}-\sqrt{2n+1}}\times\frac{\sqrt{2n+3}+\sqrt{2n+1}}{\sqrt{2n+3}+\sqrt{2n+1}}$$

$$\Rightarrow\frac{\sqrt{5}-\sqrt{3}}{2}+\frac{\sqrt{7}-\sqrt{5}}{2}+\frac{\sqrt{9}+\sqrt{7}}{2}+\text{-------}\frac{\sqrt{2n+3}+\sqrt{2n+1}}{2n+3-2n-1}=\frac{\sqrt{2n+3}+\sqrt{2n+1}}{2}$$

$$\Rightarrow\frac{1}{2}\left[\sqrt{5}-\sqrt{3}+\sqrt{7}-\sqrt{5}\text{-------}\sqrt{2n+3}-\sqrt{2n+1}\right]$$

$$\Rightarrow\frac{1}{2}\left[\sqrt{2n+3}-\sqrt{3}\right]$$

**21.** If $\frac{\left(9^n\right)\left(3^2\right)\left(3^{-\frac{n}{2}}\right)^{-7}-\left(\sqrt[2]{177147}\right)^n}{3^{3m}(2)^3}=\frac{1}{27}$ then

(a) $m - n + 2 = 0$ (b) $6m + 11n - 6 = 0$

(c) $6m-11n-6=0$ (d) $m-n-2 = 0$

Sol : (c)

$$\frac{3^{2n}.3^2.3^{\left(-\frac{n}{2}\right)(-7)}-\left(3^{11}\right)^{\frac{n}{2}}}{3^{3m}.2^3}=\frac{1}{3^3}$$

$$= \frac{3^{2n+2+\frac{7n}{2}}-3^{\frac{11n}{2}}}{3^{3m}.2^3}=\frac{1}{3^3}$$

$$\Rightarrow \frac{3^{\frac{11n+4}{2}}-3^{\frac{11n}{2}}}{3^{3m}.2^3}=\frac{1}{3^3}$$

$$\Rightarrow \frac{3^{\frac{11n}{2}}\left[3^{\frac{4}{2}}-1\right]}{3^{3m}.2^3}=\frac{1}{3^3}.$$

$$= \frac{3^{\frac{11n}{2}}(8)}{3^{3m}.2^3}=\frac{1}{3^3}=3^{\frac{11n}{2}-3m}=3^{-3}.$$

$$\frac{11n}{2}-3m=-3$$

$11n - 6m + 6 = 0$

$6m - 11n - 6 = 0$

**22.** Which of the following correctly shows 185367249 according to International place value chart?

(a) 1, 853, 672, 49

(b) 18, 536, 724, 9

(c) 185, 367, 249

(d) None of these

Sol : C

185, 367, 249

**23.** Roman numeral for the greatest three digit number is

(a) IXIXIX

(b) CMXCIX

(c) CMIXIX

(d) CMIIC

Sol : B

CMXCIX

**24.** Who is the father of Geometry?

(a) Pythagoras (b) Thales

(c) Archimedes (d) Euclid.

Sol :d

Euclid.

**25.** In the new budget, the price of a petrol rose by 10%, the percent by which one must reduce the consumption so that the expenditure does not increase is :

(a) $6\frac{1}{9}\%$ (b) $6\frac{1}{4}\%$

(c) $9\frac{1}{11}\%$ (d) 10%

Sol : (c)

Let price of petrol = Rs x

price hike = 10%

i.e. $\frac{10}{100} \times x = \frac{x}{10}$

New price = $x + \frac{x}{10} = \frac{11x}{10}$

earlier consumption = y litra

earlier investment = xy.

A.T.Q.,

Present investment = previous investment

$\left(\frac{11x}{10}\right)$ (present petrol consumption) = xy present petrol consumption = (xy) × $\frac{10}{11x}$

= $\frac{10y}{11}$

Reduction in consumption = $y - \frac{10y}{11} = y/11$ % age = $\frac{y/11 \times 100}{y}$

$= \frac{100}{11} = 9\frac{1}{11}\%$

**26.** a × (b + c) = a × b +a × c, the property is

(a) associative (b) commutative

(c) distributive (d) anti-commutative

Sol :C

distributive

**27.** Like dozen is 12 articles ,What is "score" equals to

(a) 20 (b) 30

(c) 24 (d) 36

Sol : A

20

**28.** Three traffic lights at three different road crossing change after 48 seconds, 72 seconds and 100 seconds respectively, If they all change simultaneously at 8 a. m., at what time will they again change simultaneously?

(a) 10 a.m. (b) 9 a.m.

(c) 11 a.m. (d) 10.30 a.m

Sol :b

L.C.M of 48, 72, 100

is = 2 × 2 × 2 × 2 × 3 × 3 × 5 × 5

= 3600 sec

48 = 2 × 2 × 2 × 2 × 3 = 1 hour

$72 = 2 \times 2 \times 2 \times 3 \times 3$

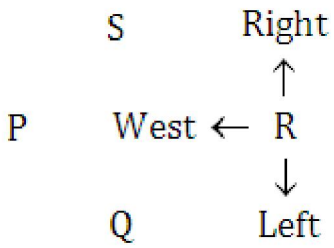
$100 = 2 \times 2 \times 5 \times 5$

**29.** P, Q, R and S are playing carom game. P, R and S, Q are partners. S is to the right of R who is facing West. Then Q is facing what direction?

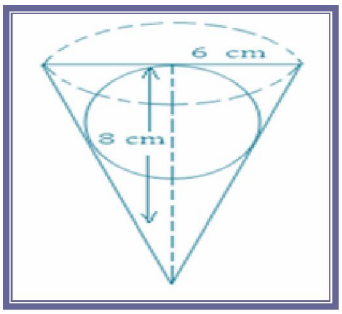
(a) North (b) south

(c) East (d) West

Sol : (d)




**30.** A conical vessel of radius 6 cm and height 8 cm is completely filled with water. A sphere is lowered into the water and its size is such that when it touches the sides, it is just immersed. What fraction of the water overflows?




(a) $\frac{2}{5}$ (b) $\frac{3}{8}$

(c) $\frac{3}{5}$ (d) $\frac{3}{4}$

Sol : (b)

A vertical section of the conical vessel and the sphere when immersed are shown in the figure.

From right angled $\Delta$ AMB,

$AB^2 = AM^2 + MB^2 = 82 + 62$

$= 64 + 36 = 0$

$\Rightarrow$ AB = 10 cm.

CB is tangent to the circle at M and AB is tangent to it at P.

PB = MB = 6

(∴ lengths of tangents from an external point to a circle are equal in length)

∴ AP = AB - PB = (10 – 6) cm = 4 cm.

Let r cm be the radius of the circle, then OP = OM = r

∴ AO = AM – OM = (8 – r) cm.

From right angled Δ OAP,

$OA^2 = AP^2 + OP^2$

$\Rightarrow (8 - r)^2 = 42 + r^2$

$\Rightarrow 64 - 16r + r^2 = 16 + r^2$

$\Rightarrow 48 = 16r \Rightarrow r = 3.$

∴ Radius of circle i.e. of the sphere = 3 cm.

∴ Volume of sphere = $\frac{4}{3}\pi \times 3^3 \text{ cm}^3 = 36\pi \text{ cm}^3.$

The volume of water which overflows = volume of the sphere

$= 36\pi \text{ cm}^3.$

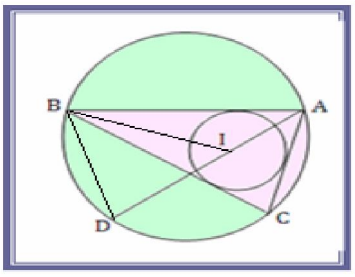
Volume of water in the cone before immersing the sphere

= volume of the cone = $\frac{1}{3}\pi \times 6^2 \times 8 \text{ cm}^3$

$= 96\pi \text{ cm}^3.$

∴ The fraction of water which overflows = $\frac{\text{Volume of water overflows}}{\text{Total volume of water}} = \frac{36\pi}{96\pi} = \frac{3}{8}.$

**31.** In the given Figure "I" is the Incentre of $\Delta ABC$. AI when produced meets the circumcircle of $\Delta ABC$ in D. If $\angle BAC = 66^0$ and $\angle ACB = 80^0$, then $\angle DBC$, $\angle IBC$ & $\angle BID$ respectively is :




(a) $17^0, 33^0$ & $50^0$ (b) $33^0, 50^0$ & $17^0$

(c) $33^0, 17^0$ & $50^0$ (d) $50^0, 33^0$ & $17^0$

Sol : (c)

AD is Angle Bisector.

∴ $\angle DBC = \angle DAC$ (Angle in the save segment)

$\therefore \angle DBC = 33^o$

$\angle A + \angle B + \angle C = 180^0$

$66^0 + \angle B + 80^o = 180^0$

$\angle B = 34^0$

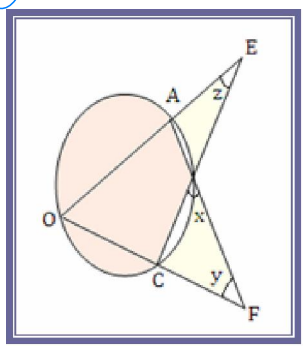
$\angle IBC = \frac{1}{2}\angle B = \frac{34}{2} = 17^0$

$\angle IBC = 17^o$

$\angle BID = 50^0 + 80^0 + x = 180^0$

$x = 50^0$

**32.** In the given figure if $y = 32^0$ and $z = 40^0$, then x is




(a) $54^0$ (b) $108^0$

(c) $50^0$ (d) $58^0$

Sol : (a)

$x + + x + y = 180^0$ (Exterior angle of cyclic quadrilateral is equal to interior opposite angles)

$2x + 32 + 40 = 180^0$

$2x = 108$

$x = 54^0$

**33.** The factors of $x^4 + y^4 + x^2y^2$ are

(a) $(x^2 + y^2)(x^2 + y^2 - xy)$ (b) $(x^2 + y^2)(x^2 - y^2)$

(c) $(x^2 + y^2 + xy)(x^2 + y^2 - xy)$ (d) Factorization is not possible

Sol : (c)

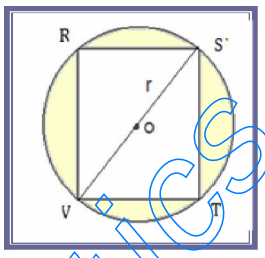
$x^4 + y^4 + x^2y^2$

$\left(x^2\right)^2 + \left(4^2\right)^2 + 2x^2y^2 - x^2y^2$

$\left(x^2+y^2\right)^2-(xy)^2$

$\left(x^2+y^2-xy\right)\left(x^2+y^2+xy\right)$.

**34.** In the given figure, RSTV is square inscribed in a circle with centre O and radius r. The total area of shaded region is _____.




(a) $r^2(\pi - 2)$ (b) $2r^2(2 - \pi)$

(c) $\pi(r^2 - 2)$ (d) $8r^2 - 8r$

Sol : (a)

Let side of square = x

$x^2 + x^2 = (2r)^2$

$2x^2 = 4r^2$

$x^2 = 2r^2$

$x = \sqrt{2}\ r$

Area of square = $(\sqrt{2}\ r)^2 = 2r^2$

shaded Area = $\pi r^2 - 2r^2 = r^2(\pi - 2)$.

**35.** (x% of y + y% of x) =

(a) x% of y (b) y% of x

(c) 2% of xy (d) x% of xy

Sol : (c)

$\frac{x}{100} \times y + \frac{y}{100} \times x$

$= \frac{2xy}{100} = \frac{2}{100} \times xy$

**36.** A is the father of C and D is the son of B.E is the brother of A. If C is the sister of D, how is B related to E?

(a) Daughter (b) Brother-in-law

(c) Husband (d) Sister-in-law

Sol : (d)

A is the father of C and C is the sister of D means A is the father of D. Since D is the son of B so B is the mother of D and wife of A. Also, E is the brother of A so B is the sister-in-law of E.

**37.** Ravi is not wearing white and Ajay is not wearing blue. Ravi and sohan wear different colour. Sachin alone wear red. What is sohan colured, if all four them are wearing different colour.

(a) red (b) blue

(c) white (d) can't say

Sol :(d)

The fourth colour and some more information are required.

**38.** How many times in a day, that of two hands of a clock coincide?

(a) 11 (b) 12

(c) 22 (d) 24

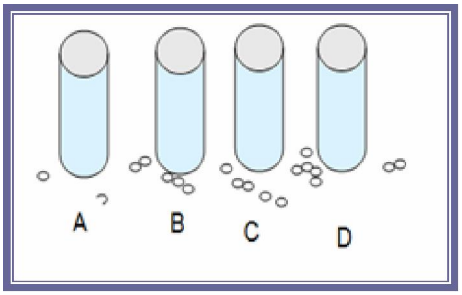
Sol : (C)

22

**39.** Consider the following steps regarding the beans.

1. Fill cup A with beans.
2. Pour half of the beans from cup A into cup B.
3. Pour half of the beans from cup B into cup C.
4. Pour half of the beans from cup A into cup C.
5. Pour all of the beans from cup A into cup D.
6. Pour half of the beans from cup C into cup A.

Which cup contains the most beans now?



(a) cup C

(b) cup B

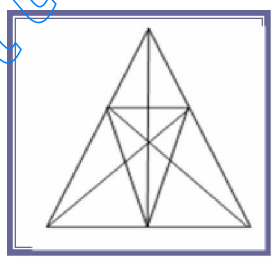
(c) cup D

(d) All cups have equal

Sol : (d)

| | AB | C | D | |
|---|---|---|---|---|
| Step 1. | 50 | 50 | 0 | 0 |
| Step 2. | 50 | 25 | 25 | 0 |
| Step 3. | 25 | 25 | 50 | 0 |
| Step 4. | 0 | 25 | 50 | 25 |
| Step 5. | 25 | 25 | 25 | 25 |

**40.** Tell the number of triangles in the following figures



(a)40

(b) 45

(c) 47

(d) 50

Sol : C

47

**41.** A school bus travels from Delhi to Chandigarh. There are 4 children, 1 teacher and 1 driver in the bus. Each child has 4 backpacks with him. There are 4 dogs sitting in each backpack and every dog has 4 puppies. What is the total number of eyes in the bus.

(a) 256

(b) 128

(c) 657

(d) 652

Sol : (d)

No. of teacher =1

No. of driver= 1

eyes of teacher and driver= (1+1)X2=4

No. of children=4

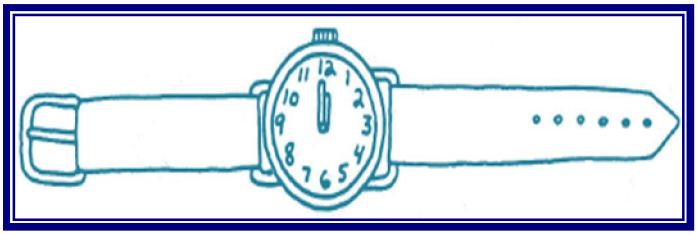
eyes of children= 4 x 2=8

No. of dogs in each backpack= 4x4=16x4=64x2=128 eyes

eyes of puppies= 64x4=256x2=512 eyes

Total eyes= 4+8+128+512=652 eyes

**42.** Watch out for this wristwatch. It's all wound up – but it's headed in the wrong direction! At 12:00 it always shows the correct time. Then its hands move to the left instead of the right. See if you can figure out what time it is when the watch shows the times 8:30

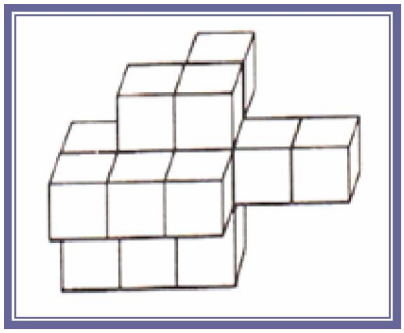


(a) 8.30 (b) 3.30

(c) 5.30 (d) 4.30

Sol : B 3.30

**43.** The solid below is made up of cubes. How many cubes required making the given solid?



(a) 14 (b) 16

(c) 18 (d) 19

Sol : A

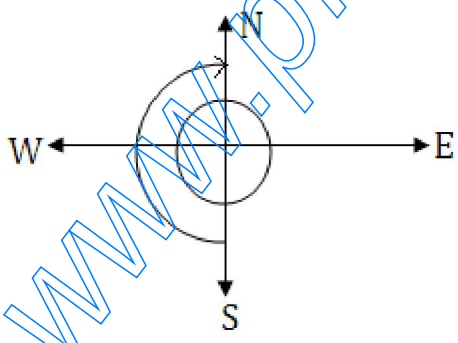
14

**44.** The direction in which you reach, if you move from South and take one and a half revolution clockwise

(a) West (b) East

(c) South (d) North

Sol : d



**45.** If Monday is coded as 123456 and Belt is coded as 0789, how would you encode the word TOMBAY?

(a) 921056 (b) 460528

(c) 290165 (d) 258702

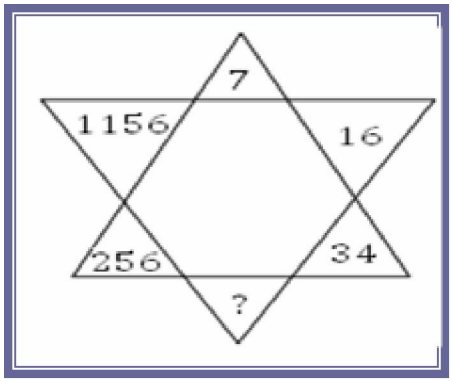
Sol : (a)

| M O N D A Y | B E L T |
|---|---|
| 1 2 3 4 5 6 | 0 7 8 9 |

T O M B A Y

9 2 1 0 5 6

**46.** The missing number (?) is




(a) 72 (b) 49

(c) 68 (d) 66

Sol : (b)

$(34)^2 = 1156$

$16 = 256$

$(7)^2 = 49$

**47.** Fill the vacant box:

| | | |
|---|---|---|
| 7 | 8 | 9 |
| 343 | 64 | 729 |
| | 81 | 49 |

(a) 216 (b) 324

(c) 464 (d) 512

Sol : D

512

**48.** B is the husband of P. Q is the only grandson of E, who is wife of D and mother-in-law of P. How is B related to D

(a) Nephew (b) Cousin

(c) Son-in-law (d) Son

Sol : D

B is the husband of P and E is mother-in-law of P. So, B is son of E. Also E is wife of D. Thus, B is the son of D.

**49.** Choose the pair in which the words are differently related

(a) Sheep : Bleat (b) Horse : Neigh

(c) Ass : Grunt (d) Owl : Hoot

Sol : C

In all other pairs, second is the sound made by the first

**50.** If 'paper' is called 'wood', 'wood' is called 'straw', 'straw' is called 'grass', 'grass' is called 'rubber' and 'rubber' is called 'cloth', what is the furniture made up of?

(a) Paper (b) Wood

(c) Straw (d) Grass

Sol :C

The furniture is made up of 'wood' and as given, 'wood' is called 'straw'. So, the furniture is made up of 'straw'