

Solve; $\frac{1}{2 - \frac{1}{2 - \frac{1}{2 - x}}}$, $x \neq 2$

Q12) Find the values of x, given that the three consecutive term of an A.P as; $3x^2 + 4x + 4$, $2x^2 + 3x + 3$, $3x + 8$.

Q13) A circle is inscribed in a ΔABC , having sides 8cm, 10cm and 12cm. Find AD, BE and CF.

Q14) Find the area of shaded region, quadrants shown in the figure is each of 7cm.

Q15) Find the volume of largest right circular cone that can be cut of a cube whose edge is 9cm.

Q16) If (-3, a) is image of point (1, a + 4) in point (b, 1), find the value of a and b.

Q17) Find the length of median through A of a triangle whose vertices are A (-1, 3), B (1, -1) and C (5,1).

Q18) Two dice are thrown simultaneously, find probability of getting,

i) a prime number on first and composite on other. ii) A product of composite number.

Section-C

Q19) Find roots of equation; $\frac{a}{x-b} + \frac{b}{x-a} = 2$, $x \neq a, b$

Q20) Find the sum of integer from 1 to 100 that is divisible by 2 or 5.

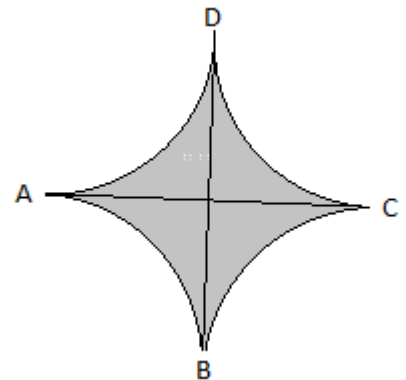
Or

If p^{th} and q^{th} term of an A.P. are $\frac{1}{qr}$ and $\frac{1}{pr}$ respectively, find the r^{th} term.

Q21) Two tangent segment BC and BD are drawn to a circle with centre O. such that $\angle CBD = 120^\circ$. Prove that $BO = 2BC$.

Q22) Construct a ΔABC whose sides are in ratio 2 : 3 : 4 and perimeter equal to 12cm. Construct another $\Delta AB'C'$ similar to ΔABC such that $AB' = \frac{4}{3} AB$.

Q23) In a circular table covers of radius 32cm, designs formed leaving a equilateral ΔABC . Find the area of design.



Q24) A spherical water pot is kept on a rectangular slab of cement 20cm x 20cm x 10cm. One fourth pot gets embedded into the slab for balance. The total volume of pot and slab be $\frac{50000}{7}$ cm³, find the radius of pot.

Or

The barrel of a fountain- pen, cylindrical in shape, is 7cm long and 5mm in diameter. A full barrel of ink in the pen will be used up on writing 330 words on an average. How many words would use up a bottle of ink containing one fifth of a liter?

Q25) Two posts are 120m apart and height of one is double that of other. From the midpoint of the line joining their feet, an observer finds the angular elevation of their top to be complementary. Find the height of post.

Q26) From a well shuffled deck of 52 cards, a card is drawn. What is chance that

- i) It is neither a king nor a spade.
- ii) It is a king or a heart or a red card.
- iii) It is red card or honour card.

Or

An integer is selected at random from first one hundred positive integers. Find the probability that integer chosen is either multiple of 5 or a multiple of 7.

Q27) The line joining the points (2, 1) and (5, -8) is trisected by the points P and Q, If point lies on the line $2x - y + k = 0$, Find value of k.

Q28) The Point A divides the joining P (-5, 1) and Q (3, 5) in the ratio k : 1. Find the value of k for which ar(Δ ABC) = 2 sq.unit , where B is (1, 5) and C(7, -2)

Section-D

Q29) If the roots of the equation $(b - c)x^2 + (c - a)x + (a - b) = 0$ are equal, prove that a, b and c are in A.P

Or

A pole has to be erected at a point on the boundary of a circular park of diameter 13m such a way that difference of its distance from two diametrically opposite gates A&B on the boundary is 7m. Is it possible to-do so. If yes at what distance from the two gates should the pole be erected?

Q30) Find the common difference of an A.P. whose first term is 100 and sum of whose first six term is five times the sum of next six terms.

Q31) From a solid sphere of radius of 5cm, a right circular cylindrical hole of radius 3cm, with its axis passing through the centre, is removed Find total surface area and volume of remaining solid.

(Use $\pi = 3.14$)

Or

The height of right circular cone is trisected by two plane parallel to its base. Show that the volume of the three portion from top are in the ratio 1 : 7 : 19.

Q32) Prove that a tangent to a circle is perpendicular to the radius through the point of contact.

Q33) In fig. Diameter $AB = 42\text{cm}$ and D is mid-point of AB . Semi-circles are drawn on AD , BD as diameter. A circle with centre O touches all three circles. If $AC = 21\sqrt{3}\text{ cm}$, find the area of shaded region.

Q34) A ladder rests against a wall at an angle 60° to the horizontal. Its foot is pulled away from the wall through a distance x , so that it slides a distance y down the wall, makes an angle 30° with the

horizontal. Find $\frac{x}{y}$

