

Q.8) ABCD is a trapezium in which AB is parallel to CD. BD is a diagonal and E is the midpoint of AD. A line parallel to AB is drawn through E intersecting BC at F. If BC is 6 cm, then the length of BF is ____.

- A) 6 cm B) 2 cm C) 3 cm D) 9 cm

Q.9) If the area of an equilateral triangle is $36\sqrt{3}$ sq cm, then the perimeter is ____.

- A) 36 cm B) 37 cm C) 37.2 cm D) 36.2 cm

Q.10) If $2^{2n-3} = \frac{1}{8^{n-3}}$, then $n =$ ____.

- A) 3 B) $\frac{12}{5}$ C) 0 D) -2

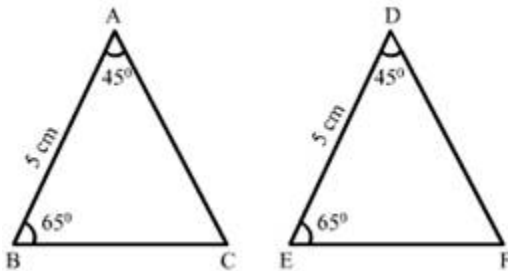
Q.11) If $f(x) = 2x^3 - 13x^2 + 17x + 12$, then the value of $f(x)$ at $x = -\frac{1}{2}$ is ____.

- A) -1 B) 2 C) 1 D) 0

Q.12) If a point Q lies between two points P and R such that $PQ = QR$, then $PQ =$ ____.

- A) $\frac{1}{4}PR$ B) $\frac{2}{3}PR$ C) $\frac{1}{2}PR$ D) $\frac{3}{4}PR$

Q.13) In $\triangle ABC$ and $\triangle DEF$, $AB = DE = 5$ cm, $\angle B = \angle E = 65^\circ$ and $\angle A = \angle D = 45^\circ$. By which of the following congruence conditions are the two triangles congruent?



- A) ASA B) SSS C) SAS D) RHS

Q.14) ABCD is a quadrilateral. P, Q, R and S are the points on the sides AB, BC, CD and DA respectively such that $\frac{BP}{PA} = \frac{2}{1}$, $\frac{BQ}{QC} = \frac{2}{1}$, $\frac{DR}{RC} = \frac{2}{1}$ and $\frac{DS}{SA} = \frac{2}{1}$. Then PQRS is a ____.

- A) Trapezium B) Parallelogram C) Rhombus D) Rectangle

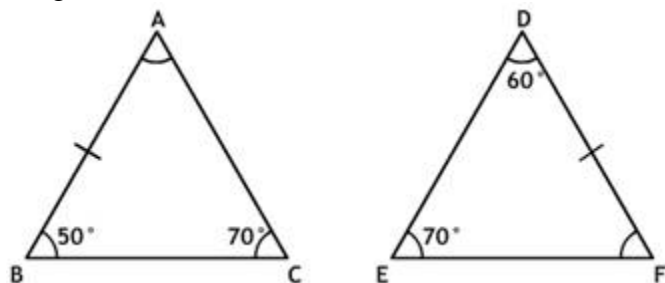
Q.15) If the height of an equilateral triangle is 8 cm, then its area is ____.

- A) 42.8 cm^2 B) 36.9 cm^2 C) 92.2 cm^2 D) 34.8 cm^2

Q.16) If a cuboid of dimensions 20 cm, 10 cm and 5 cm is melted and cast into a cube, then the length of the edge of the cube so formed will be ____.

- A) 5 cm B) 10 cm C) 15 cm D) 25 cm

Q.21) In $\triangle ABC$ and $\triangle DEF$, $AB = DF$, $\angle ACB = 70^\circ$, $\angle ABC = 50^\circ$, $\angle DEF = 70^\circ$ and $\angle EDF = 60^\circ$. By which of the following congruence conditions are the two triangles congruent?



- A) SSS B) ASA C) SAS D) RHS

Q.22) Following table shows the marks scored by a group of 90 students in a mathematics test of 100 marks.

Marks	No. of Students
0 - 20	7
20 - 30	10
30 - 40	10
40 - 50	20
50 - 60	20
60 - 70	15
70 - 100	8

The probability that a student obtained less than 20 marks is _____.

- A) $\frac{7}{90}$ B) $\frac{11}{90}$ C) $\frac{23}{90}$ D) $\frac{20}{90}$

Q.23) The below are the temperature details that were recorded in Alaska in 11 days: -21°C , 0°C , 2°C , -15°C , 0°C , 5°C , -18°C , 7°C , 0°C , -32°C and 21°C .

The mode temperature of the data is _____.

- A) 2°C B) 21°C C) -18°C D) 0°C

Q.24) The diameter of base and the height of a conical house are 14 m and 18 m respectively and the capacity of a rice bag is 33 m^3 . The number of such rice bags required to fill the conical house is _____.

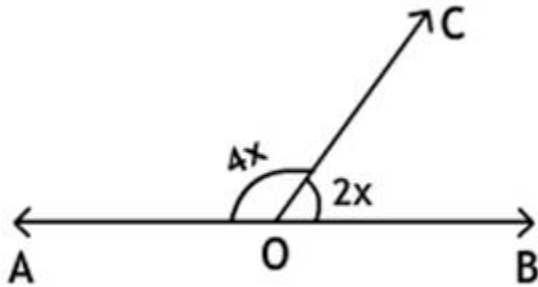
- A) 14 B) 24 C) 28 D) 25

Q.25) The value of $\sqrt[5]{16} \times \sqrt[5]{2}$ is _____.

- A) 1 B) 3 C) 2 D) 5

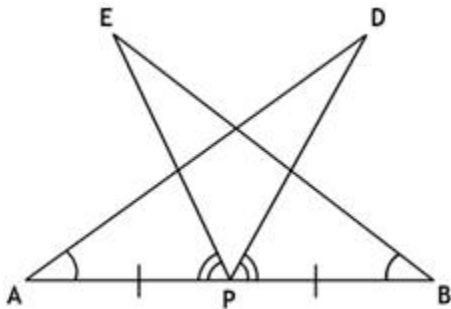
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Q.30) In the figure below, OA and OB are opposite rays. Then the value of x is ____.



- A) 40° B) 35° C) 30° D) 25°

Q.31) In the figure below, AB is a line segment and P is its midpoint, D and E are points on the same side of AB such that $\angle BAD = \angle ABE$ and $\angle EPA = \angle DPB$. If $AD = 4.7$ cm, then $BE =$ ____.



- A) 4 cm B) 7 cm C) 4.7 cm D) 2.7 cm

Q.32) A coin is tossed 1000 times with the following frequencies :
Head : 455 and Tail : 545

Then the probability of getting a head is ____.

- A) 0.455 B) 0.055 C) 0.545 D) 0.0455

Q.33) The marks scored by 20 students is 2, 50, 4, 50, 6, 20, 50, 13, 15, 60, 50, 69, 43, 12, 50, 39, 65, 50, 13, 40

The frequency of 50 in the above data is ____.

- A) 3 B) 4 C) 6 D) 1

Q.34) The ratio of the slant heights of two cones is 5 : 4. If the radius and curved surface area of the first cone are 7 cm and 4070 cm^2 respectively, then the curved surface area of the second cone whose radius is 14 cm is ____.

- A) 6512 cm^2 B) 6412 cm^2 C) 6262 cm^2 D) 3451 cm^2

Q.35) If $5^a = 125$, then $5^{a-1} =$ ____.

- A) 25 B) 125 C) 625 D) 1625

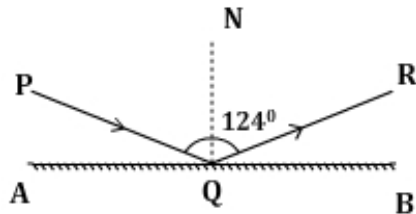
Q.36) If both the abscissa and ordinate of a point are negatives, then the point lies in the ____ quadrant.

- A) first B) second C) third D) fourth

Q.37) A man's age is three times the sum of the ages of his two sons, one of whom is twice as old as the other. In 4 years the sum of the son's age will be half of their father's age. The age of younger son, elder son and father are ____.

- A) 5 years, 10 years and 45 years B) 4 years, 8 years and 36 years
C) 3 years, 6 years and 27 years D) 6 years, 12 years and 54 years

Q.38) In the figure below, PQ is an incident ray and QR is the reflected ray. QN is normal to the surface AB. If $\angle PQR = 124^\circ$, then $\angle NQR =$ ____.

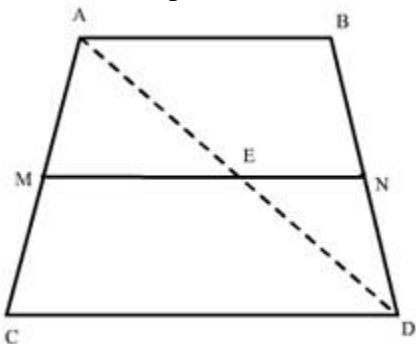


- A) 62° B) 28° C) 32° D) 64°

Q.39) In $\triangle ABC$, $\angle A = \angle B = 62\frac{1}{2}$, then $\angle C =$ ____.

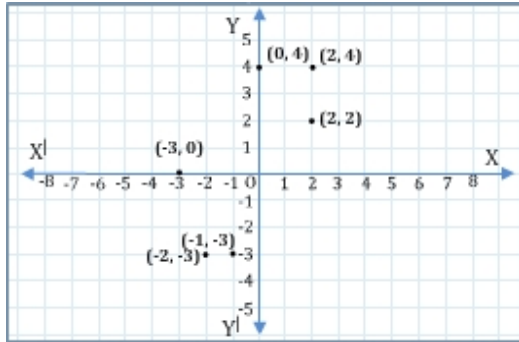
- A) 45 B) 30 C) 55 D) 40

Q.40) In the figure below, ABCD is a trapezium in which $AB \parallel CD$, M is the mid-point of AC and N is the mid-point of BD. If $AB = 12$ and $CD = 14$ cm, then the length of MN is ____.

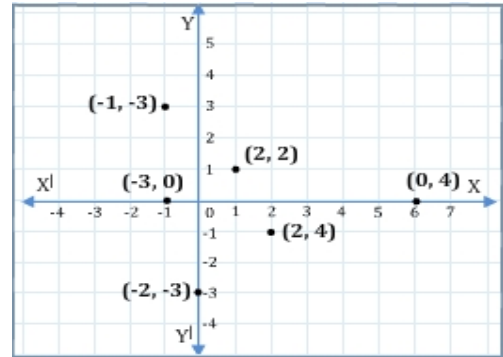


Q.46) Which of the following represents the correct plotting of the points $(-3, 0)$, $(2, 2)$, $(-2, -3)$, $(2, 4)$, $(0, 4)$ and $(-1, -3)$ on a graph paper?

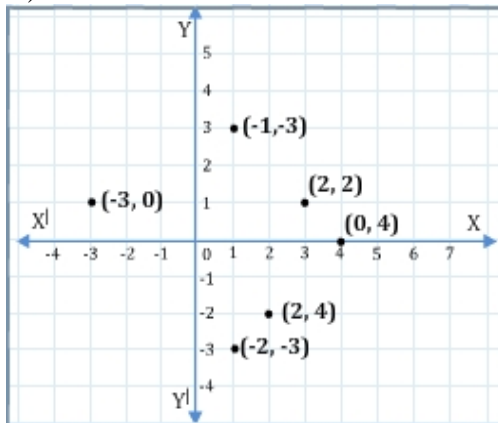
A)



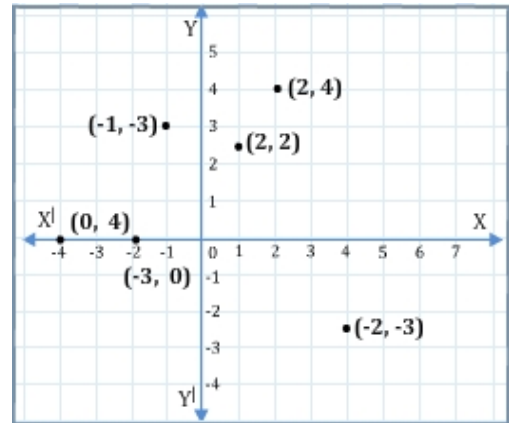
B)



C)



D)



Q.47) In the graph of the equations $3x - 2y = 4$ and $x + y - 3 = 0$, the coordinates of the point where the two lines intersect are _____.

A) $(0, 1)$

B) $(2, 2)$

C) $(2, 1)$

D) $(0, 0)$

Q.48) PQRS is a quadrilateral. A, B, C and D are the mid-points of sides of PQ, QR, RS and SP respectively. If $PR = 6$ cm and $QS = 8$ cm, then the lengths of the sides of ABCD are _____.

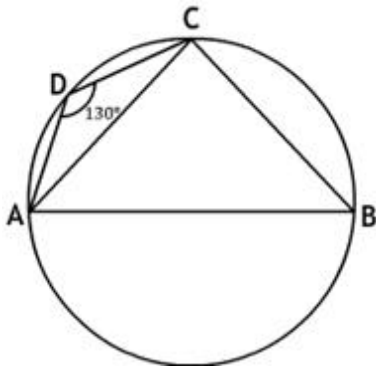
A) 3 cm, 4 cm, 3 cm and 4 cm

B) 3 cm, 7 cm, 3 cm and 7 cm

C) 5 cm, 8 cm, 5 cm and 6 cm

D) 3 cm, 7 cm, 3 cm and 4 cm

Q.49) In the figure below, ABCD is a cyclic quadrilateral whose side AB is a diameter of the circle. If $\angle ADC = 130^\circ$, then $\angle BAC =$ ____.



- A) 40° B) 35° C) 50° D) 45°

Q.50) Sanya has a piece of land which is in the shape of a rhombus. She wants her one daughter and one son to work on the land and produce different crops to suffice the needs of their family. She divided the land in two equal parts. If the perimeter of the land is 400 m and one of the diagonals is 160 m, then the area each of them will get is ____.

- A) 2800 m^2 B) 4600 m^2 C) 4800 m^2 D) 3800 m^2

Q.51) The diameter of a roller is 40 cm and its length is 91 cm. The surface area of a garden is 1,14,40,000 sq. cm. The number of rotations that the roller needed to flatten the surface of the garden when the roller was used twice is ____.

- A) 1000 B) 3000 C) 2000 D) 1500

Q.52) A person standing on the bank of a river observes that the angle of elevation of the top of a tree standing on the opposite bank is 60° . When he moves 40 metres away from the bank, he finds the angle of elevation to be 30° . The height of the tree and the width of the river are respectively ____.

- A) 35.64 m and 10 m B) 37.64 m and 30 m
C) 39.64 m and 20 m D) 34.64 m and 20 m

Q.53) A and B each have certain number of oranges. A says to B, "if you give me 10 of your oranges, I will have twice the number of oranges left with you". B replies, "if you give me 10 of your oranges, I will have the same number of oranges as left with you". The number of oranges with A and B are ____.

- A) 40 and 80 B) 30 and 50 C) 70 and 30 D) 70 and 50

Q.54) $\left(1 - \frac{1}{n}\right) + \left(1 - \frac{2}{n}\right) + \left(1 - \frac{3}{n}\right) + \dots$ up to n terms = ____.

- A) $\frac{n+1}{2}$ B) $\frac{-2n+1}{2}$ C) $-\frac{(n+1)}{2}$ D) $\frac{n-1}{2}$

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Q.55) The ratio of one polynomial to another polynomial is called a rational expression. If the numerator of a rational expression is a quadratic polynomial with the zeroes 3 and -2 and the denominator is a quadratic polynomial with the zeroes $\frac{1}{2}$ and 3, then the rational expression is

- A) $\frac{2(x-2)}{(2x-1)}$ B) $\frac{2(x+2)}{(2x+1)}$ C) $\frac{2(x+2)}{(2x-1)}$ D) $\frac{(x-2)}{(2x-1)}$

Q.56) The sum of all natural numbers between 250 and 1000 which are exactly divisible by 3 is

- A) 154263 B) 146987 C) 156324 D) 156375

Q.57) If two numbers are respectively 10 % and 25 % more than a third number, then the first number as a percent of the second is _____.

- A) 78 B) 80 C) 88 D) 85

Q.58) If one bulb is taken out at random from a box of 600 electric bulbs containing 12 defective bulbs, then the probability of getting a non-defective bulb is _____.

- A) 0.78 B) 0.65 C) 0.98 D) 0.85

Q.59) The arithmetic mean of 5 numbers is 27. If one of the numbers is excluded, the mean of the remaining numbers is 25. Find the excluded number.

- A) 27 B) 25 C) 30 D) 35

Q.60) Amol is as much younger to Anil as he is older to Salil. If sum of ages of Anil and Salil is 52 years then age of Amol is?

- A) 30 B) 28 C) 26 D) None of these