

JAIPUR EDUCATION PLUS

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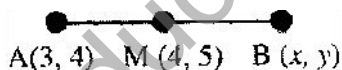
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BOARD PAPER SECONDARY EXAMINATIONS, 2014

SECTION-A

- Q.1. Number $\frac{3}{625}$ is a terminating decimal or a non-terminating repeating decimal? Write it in decimal form. [Ans 0.0048]
- Q.2. Write the solution of the pair of linear equation $3x + 4y = 0$ and $2x - y = 0$ [Ans. 0, 0]
- Q.3. Write the next two terms of A.P. 4, 1, -2, -5
- Q.4. Write the distance of the point (3, -2) from y-axis.
- Q.5. If M (4, 5) is the mid point of the line segment AB and Co-ordinates of A are (3, 4), then find the co-ordinates of point B.



- Q.6. If tangents TA and TB from a point T to a circle with centre O are inclined to each other at an angle of 70° , then find $\angle AOB$ [Ans. 110°]
- Q.7. Construct a tangent to any point on the circle of radius 3 cm.
- Q.8. Write the area of sector of a circle with radius and angle with degree measure.
- Q.9. Find the area of circle whose circumference is 44 cm. [Ans. 154 cm^2]
- Q.10. If the probability of solving a problem by a student is $\frac{2}{3}$, then find the probability of not solving the problem by the student. [Ans $\frac{1}{3}$]

SECTION-B

- Q.11. A boy 2m long casts a shadow in long on the playground. At the same time, a tower casts a shadow 5 m long on the ground. Find the height of the tower. [Ans 10 m]

Q.12 If $\sin \theta = \frac{1}{2}$, then find the value of $\frac{1-2\sin^2 \theta}{\sin \theta}$ [Ans 1]

Q.13 Find the value of $\cos^2 12^\circ + \cos^2 78^\circ$ [Ans 1]

Q.14 Show that $\tan 36^\circ \tan 17^\circ \tan 54^\circ \tan 73^\circ = 1$ [Ans 1]

Q.15 Two cubes each of volume 27 cm^3 are joined end to end to form a solid. Find the surface area of the resulting cuboid. [Ans 90 cm^2]

SECTION-C

Q.16 Find the H.C.F. and L.C.M. of the numbers 180, 72 and 252. [Ans HCF 36, LCM 2520]

Q.17 If the sum of zeroes of the quadratic polynomial $Kx^2 + 5x + 3k$ is equal to their product, find the value of k . [Ans $-\frac{5}{3}$]

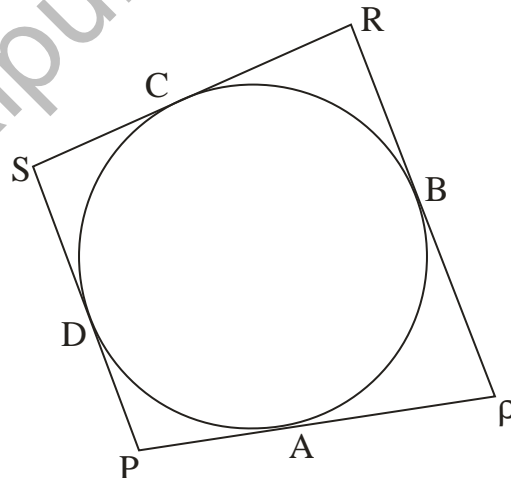
Q.18 If the sum of the first 12 terms of an A.P. is 468 and its common difference is 6, find the 10th term. [Ans 60]

Q.19 Prove that $\sqrt{\frac{1+\cos A}{1-\cos A}} = \operatorname{cosec} A + \cot A$. [Ans LHS = cosec A + cot A = RHS]

Q.20 From the top of a 10m high building, the angle of elevation of a tower is 60° and the angle of depression of its foot is 45° . Determine the height of the tower.

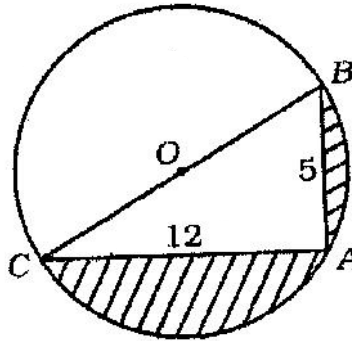
[Ans $h = (10\sqrt{3} + 1)$]

Q.21 In the figure, a quadrilateral PQRS is drawn to circumscribe a circle. Prove that $PQ + RS = PS + QR$.



Q.22 Construct a tangent to a circle of radius 3 cm. from a point on the concentric circle of radius 5 cm and measure its length.

- Q.23 Find the area of the shaded region in the figure, if $AB = 5$ cm. $AC = 12$ cm. and O is the centre of the circle.



- Q.24 A hemispherical tank full of water is emptied by a pipe at the rate of 5 liters per second. How much time will take to empty half of the tank, if it is 3.5 m diameter?

[Ans 18.7 minutes]

- Q.25 A box contains 30 discs which are numbered 1 to 30. If one disc is drawn at random from the box, find the probability that it bears

- (i) a two digit number
- (ii) a perfect square number.

SECTION-D

- Q.26 Ashok scored 65 marks in a test, getting 5 marks for each right answer and losing 2 marks for each wrong answer. Had 3 marks been awarded for each correct answer and 1 mark been deducted for each incorrect answer, then Ashok would have scored 40 marks. Formulate the problem algebraically and solve it graphically. How many questions were given in the test?

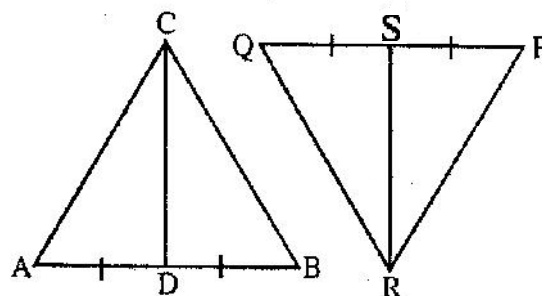
- Q.27 An express train takes 2 hour less time than a passenger train to travel 400 km between two stations (without taking into consideration the time they stop at intermediate stations). If the average speed of the express train is 10 km/h more than that of the passenger train. Find the average speed of the two trains.

[Ans 50 km/hr]

- Q.28 In the figure, CD and RS are respectively the medians of $\triangle ABC$ and $\triangle PQR$. If $\triangle ABC \sim \triangle PQR$, prove that

(i) $\triangle ADC \sim \triangle PSR$

(ii) $\frac{CD}{RS} = \frac{AB}{PQ}$



OR

Q.28 BE and CF are medians of a triangle. ABC right angled at A. Prove that $4(BE^2 + CF^2) = 5BC^2$.

Q.29 Find the co-ordinate of points of trisection of the line segment joining the point P(3, 4) and Q (4, 5).

Q.30 If the median of the distribution given below is 28.5, find the values of x and y .

Class Interval	0–10	10–20	20–30	30–40	40–50	50–60	Total
Frequency	5	x	20	15	y	5	60

OR

Q.30 The mean of the following frequency table is 50. Find the values of x and y .

Class Interval	0–20	20–40	40–60	60–80	80–100	Total
Frequency	17	x	32	y	19	120