



MATHS

BOOKS - JEE MAINS PREVIOUS YEAR

PARABOLA



1. The equation of a tangent to the parabola

 $y^2=8x$ is y=x+2 . The point on this line

from which the other tangent to the parabola

is perpendicular to the given tangent is

A.
$$(-1, 1)$$

B. $(0, 2)$
C. $(2, 4)$
D. $(-2, 0)$

Answer: D

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2. If two tangents drawn from a point P to the parabola $y^2 = 4x$ are at right angles, then the locus of P is (a)2x+1=0(b)x=-1(c)2x-1=0(d)x=1`

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3. Statement 1: An equation of a common tangent to the parabola $y^2 = 16\sqrt{3}x$ and the ellipse $2x^2 + y^2 = 4isy = 2x + 2\sqrt{3}$. Statement 2: If the line $y = mx + \frac{4\sqrt{3}}{m}, (m \neq 0)$ is a common tangent to the parabola $y^2 = 16\sqrt{3}x$ and the ellipse $2x^2 + y^2 = 4$, then m satisfies $m^4 + 2m^2 = 24$. (1) Statement 1 is false, statement 2 is true (2) Statement 1 is true, statement 2 is true;

statement 2 is a correct explanation for statement 1

(3) Statement 1 is true, statement 2 is true; statement 2 is not a correct explanation for statement 1

(4) Statement 1 is true, statement 2 is false



4. The equation to the line touching both the

parabolas $y^2 = 4x$ and $x^2 = -32y$ is

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5. Let O be the vertex and Q be any point on the parabola, $x^2 = 8y$. It the point P divides the line segment OQ internally in the ratio 1 : 3, then the locus of P is : (1) $x^2 = y$ (2) $y^2 = x$ (3) $y^2 = 2x$ (4) $x^2 = 2y$ 6. The centres of those circles which touch the circle, $x^2 + y^2 - 8x - 8y - 4 = 0$, externally and also touch the x-axis, lie on : (1) a circle. (2) an ellipse which is not a circle. (3) a hyperbola. (4) a parabola.

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7. Let P be the point on the parabola, $y^2 = 8x$ which is at a minimum distance from the centre C of the circle, $x^2 + (y+6)^2 = 1$. Then



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