

Trigonometry Functions - Class XI

Past Year JEE Questions

Questions

Question: 01

The maximum value of $3\cos\theta + 5\sin\left(\theta - \frac{\pi}{6}\right)$ for any real value of θ is :

- A. $\sqrt{34}$
- B. $\sqrt{31}$
- C. $\sqrt{19}$
- D. $\frac{\sqrt{79}}{2}$

Solutions

Solution: 01

Explanation

$$y = 3\cos\theta + 5\left(\sin\theta\frac{\sqrt{3}}{2} - \cos\theta\frac{1}{2}\right)$$

$$\frac{5\sqrt{3}}{2}\sin\theta + \frac{1}{2}\cos\theta$$

$$y_{\max} = \sqrt{\frac{75}{4} + \frac{1}{4}} = \sqrt{19}$$