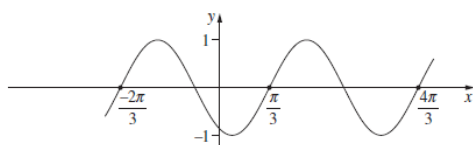
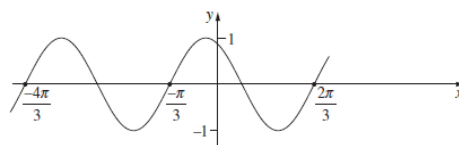


2013 6**1**Which diagram shows the graph $y = \sin(2x + \frac{\pi}{3})$?

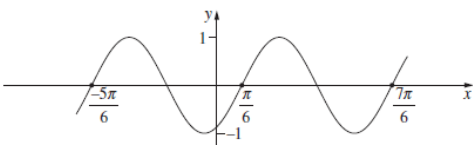
(A)



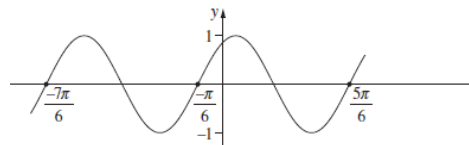
(B)



(C)



(D)

**D** $\sin(2x + \frac{\pi}{3})$ has max when $2x + \frac{\pi}{3} = \frac{\pi}{2}$

$$2x = \frac{\pi}{2} - \frac{\pi}{3}$$

$$= \frac{\pi}{6}$$

$$x = \frac{\pi}{12}$$

 $\therefore y = \sin(2x + \frac{\pi}{3})$ has a max at $x = \frac{\pi}{12}$ \therefore correct graph is D**OR:**

$$\text{Solve } \sin(2x + \frac{\pi}{3}) = 0$$

$$2x + \frac{\pi}{3} = 0, \pi, 2\pi, \dots, -\pi, -2\pi, \dots$$

$$2x = -\frac{\pi}{3}, \frac{2\pi}{3}, \frac{5\pi}{3}, \dots, \frac{-4\pi}{3}, \frac{-7\pi}{3}, \dots$$

$$x = -\frac{\pi}{6}, \frac{\pi}{3}, \frac{5\pi}{6}, \frac{-2\pi}{3}, \frac{-7\pi}{6}, \dots$$

 \therefore the graph has x-intercepts of $-\frac{7\pi}{6}, -\frac{\pi}{6}, \frac{5\pi}{6}$

State Mean:

0.34* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by the Board of Studies

A

$$\begin{aligned}\frac{\pi^2}{6} &= 1.644934067\dots \\ &= 1.64 \text{ (3 sig. figs.)}\end{aligned}$$

State Mean:
0.88

(A)

* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by BOSTES.

2014 1

What is the value of $\frac{\pi^2}{6}$, correct to 3 significant figures?

- (A) 1.64 (B) 1.65 (C) 1.644 (D) 1.645

A

$$\begin{aligned}\frac{\pi^2}{6} &= 1.644934067\dots \\ &= 1.64 \text{ (3 sig. figs.)}\end{aligned}$$

State Mean:
0.34

1

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