

f r q

$$(i) 2(\sin x)(\cos x) - \cos x = 0$$

$$\cos x(2 \sin x - 1) = 0$$

$$\cos x = 0 \text{ or } 2 \sin x - 1 = 0$$

$$\cos x = 0 \text{ or } \sin x = \frac{1}{2}$$

$$x = \frac{\pi}{2} \text{ or } x = \frac{\pi}{6}$$

$$(ii) 8e^{(3x)} - e = 3e$$

$$8e^{(3x)} = 4e$$

$$e^{(3x)} = \frac{e}{2}$$

$$\ln(e^{(3x)}) = \ln\left(\frac{e}{2}\right)$$

$$3x = \ln\left(\frac{e}{2}\right)$$

$$x = \frac{1}{3} \ln\left(\frac{e}{2}\right)$$

$$x = \frac{\ln e - \ln 2}{3}$$

$$x = \frac{1 - \ln 2}{3}$$

**24. Part C**

The function  $m$  is given by

$$m(x) = \cos(2x) + 4.$$

Find all input values in the domain of  $m$  that yield an output value of  $\frac{9}{2}$ .

**Part C**

Select a point value to view scoring criteria, solutions, and/or examples to score the response.



0	1	2
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The student response includes both of these criteria.

- Values of  $\theta$  in  $0 \leq \theta \leq 2\pi$  with  $\cos \theta = \frac{1}{2}$
- General solution expression