

f r q

Model Solution

$$(i) j(x) = (\sec x)(\cot x)$$

$$j(x) = \left(\frac{1}{\cos x}\right)\left(\frac{\cos x}{\sin x}\right)$$

$$j(x) = \left(\frac{1}{\sin x}\right), \sin x \neq 0, \cos x \neq 0$$

$$(ii) k(x) = \frac{(16^{3x}) \cdot 4^x}{2}$$

$$k(x) = \frac{((4^2)^{3x}) \cdot 4^x}{4^{1/2}}$$

$$k(x) = \frac{(4^{6x}) \cdot 4^x}{4^{1/2}}$$

$$k(x) = \frac{4^{7x}}{4^{1/2}}$$

$$k(x) = 4^{(7x - \frac{1}{2})}$$

Part C

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



0

1

2

The student response includes both of these criteria.

- One solution without n
- General solution expression

Model Solution

$$m(x) = 1$$

$$\sqrt{3} \tan\left(x + \frac{\pi}{2}\right) = 1$$

$$\tan\left(x + \frac{\pi}{2}\right) = \frac{1}{\sqrt{3}}$$

$$x + \frac{\pi}{2} = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right) + \pi n, \text{ where } n \text{ is an integer}$$

$$x + \frac{\pi}{2} = \frac{\pi}{6} + \pi n, \text{ where } n \text{ is an integer}$$

$$x = -\frac{2\pi}{6} + \pi n, \text{ where } n \text{ is an integer}$$

$$x = -\frac{\pi}{3} + \pi n, \text{ where } n \text{ is an integer}$$