PRINTABLE VERSION

Quiz 10

You scored 100 out of 100

Question 1

Your answer is CORRECT.

Which of the following is equivalent to

$$\frac{\sin^2(\theta)}{\cos(\theta)} + \cos(\theta)$$

$\sin^2\theta + \cos^2\theta = 1$

$= \frac{\sin^2\theta + \cos^2\theta}{\cos\theta} = \frac{1}{\cos\theta} = \sec(\theta)$

a) $\sec(\theta)$

b) $\cos(\theta)$

c) $\sin^2(\theta)$

d) $\tan(\theta)$

e) $\sin(\theta)$

f) None of the above.

Question 2

Your answer is CORRECT.

Which of the following statements are true?

I. $\sin(\pi/2 - x) = \cos(x)$ ✓

II. $\tan(\pi/2 - x) = \cot(x)$ ✓

III. $\cos(\pi/2 - x) = \sin(x)$ ✓

a) None of these

b) I and III only

c) II and III only

$\sin(\pi/2 - x) = \sin(\pi/2)\cos(x) - \cos(\pi/2)\sin(x)$ ($\cos(\pi/2) = 0$)

$= \cos(x)$

$\tan(\pi/2 - x) = \frac{\sin(\pi/2 - x)}{\cos(\pi/2 - x)} = \frac{\cos(x)}{\sin(x)}$

$= \cot(x)$

d) I, II, and III

e) I and II only

$\cos(\pi/2 - x) = \cos\frac{\pi}{2}\cos x + \sin\frac{\pi}{2}\sin(x)$ (0, 1)

$= \sin(x)$

Question 3

Your answer is CORRECT.

Which of the following is equivalent to

$$\frac{\tan(\theta)}{\sec(\theta)}$$

a) $\sin(\theta)$

b) $\cos(\theta)$

c) $\csc(\theta)$

d) $\frac{\sin(\theta)}{\cos^2(\theta)}$

e) $\frac{\cos^2(\theta)}{\sin(\theta)}$

f) None of the above.

$\frac{\tan\theta}{\sec\theta} = \frac{\frac{\sin\theta}{\cos\theta}}{\frac{1}{\cos\theta}}$

$= \frac{\sin\theta}{\cos\theta} \cdot \frac{\cos\theta}{1} = \sin\theta$

Question 4

Your answer is CORRECT.

$\sin(-\theta) = -\sin\theta$

Which of the following is equivalent to $\sin(-\theta)\csc(\theta) + \cos(\theta)\sec(\theta)$?

a) 0

b) -2

c) 2

d) -1

e) 1

$-\sin\theta\left(\frac{1}{\sin\theta}\right) + \cos\theta\left(\frac{1}{\cos\theta}\right)$

$-1 + 1 = 0$

f) None of the above.

Question 5

Your answer is CORRECT.

$\sin(-\theta) = -\sin(\theta)$

Which of the following is equivalent to $\sin^2(-\theta) + \cos^2(-\theta)$?

a) $\cos^2(\theta) - \sin^2(\theta)$ $(-\sin(\theta))^2 = \sin^2(\theta)$

b) 0 $\cos(-\theta) = \cos(\theta)$

c) 1 $\sin^2\theta + \cos\theta = 1$

d) -1

e) $\sin^2(\theta) - \cos^2(\theta)$ $\sin^2\theta + \cos^2\theta = 1$

f) None of the above. $\tan^2\theta + 1 = \sec^2\theta$

$\sec^2\theta - \tan^2\theta = 1$

Question 6

Your answer is CORRECT.

Simplify the expression $6\sec^2(\theta) - 6\tan^2(\theta)$

a) 12 $6(\sec^2\theta - \tan^2\theta)$

b) $6\sin(\theta)$ $= 6(1) = 6$

c) $6\cos(\theta)$

d) $6\theta^2$

e) 6

Question 7

Your answer is CORRECT.

Which of the following is equivalent to

$\tan(\theta+\pi) = \frac{\sin(\theta+\pi)}{\cos(\theta+\pi)}$ $\frac{1+\tan(\theta+\pi)}{1+\cot(\theta+2\pi)} = \frac{1+\tan\theta}{1+\cot\theta}$

a) $\sin(\theta)$ $= \frac{\sin(\theta)\cos(\pi) + \cos(\theta)\sin(\pi)}{\cos(\theta)\cos(\pi) - \sin(\theta)\sin(\pi)} = \frac{-\sin(\theta)}{-\cos(\theta)} = \tan\theta$

b) $\cos(\theta)$

c) $\dfrac{\cos(\theta) + 1}{\cos(\theta) - 1}$

$\cot(\theta+2\pi) = \dfrac{\cos(\theta+2\pi)}{\sin(\theta+2\pi)} = \dfrac{\cos\theta\cos 2\pi - \sin\theta\sin 2\pi}{\sin\theta\cos 2\pi + \cos\theta\sin 2\pi} = \dfrac{\cos\theta}{\sin\theta} = \cot\theta$

d) $\sec(\theta)$

e) $\tan(\theta)$

$\dfrac{1+\frac{\sin\theta}{\cos\theta}}{1+\frac{\cos\theta}{\sin\theta}} = \dfrac{\cos\theta+\sin\theta}{\cos\theta}\cdot\dfrac{\sin\theta}{\sin\theta+\cos\theta} = \dfrac{\sin\theta}{\cos\theta}\cdot\dfrac{\cos\theta+\sin\theta}{\sin\theta+\cos\theta} = \tan(\theta)$

f) None of the above.

Question 8

Your answer is CORRECT.

$\sin^2\theta+\cos^2\theta=1$

$\sin^2\theta = 1-\cos^2\theta$

Which of the following is equivalent to $(1-\cos(\theta))(\csc(\theta)+\cot(\theta))$?

$(1-\cos\theta)\left(\frac{1}{\sin\theta}+\frac{\cos(\theta)}{\sin(\theta)}\right)$

$\frac{1}{\sin\theta}+\frac{\cos\theta}{\sin\theta}-\frac{\cos\theta}{\sin\theta}-\frac{\cos^2\theta}{\sin\theta}$

$\dfrac{1-\cos^2\theta}{\sin\theta} = \dfrac{\sin^2\theta}{\sin\theta} = \sin\theta$

a) $\cos(\theta)$

b) $\sin(\theta)$

c) $\tan(\theta)$

d) $\sec(\theta)$

e) $\dfrac{\cos(\theta) + 1}{\cos(\theta) - 1}$

f) None of the above.

$\sin^2\theta+\cos^2\theta=1$ $\quad 1+\cot^2\theta=\csc^2\theta$

$\cos^2\theta = 1-\sin^2\theta$ $\quad \cot^2\theta=\csc^2\theta-1$

Question 9

Your answer is CORRECT.

Which of the following is equivalent to

$$\frac{1-\sin^2(\theta)}{\csc^2(\theta)-1}$$

$\dfrac{1-\sin^2\theta}{\csc^2\theta-1} = \dfrac{\cos^2\theta}{\cot^2\theta} = \dfrac{\cos^2\theta}{\frac{\cos^2\theta}{\sin^2\theta}}$

$= \dfrac{\cos^2\theta}{1}\cdot\dfrac{\sin^2\theta}{\cos^2\theta} = \sin^2\theta$

a) $\cos^2(\theta)$

b) $sin^2(\theta)$

c) $sin^4(\theta)$

d) $cot^2(\theta)$

e) $tan^2(\theta)$

f) None of the above.

$\sin^2\theta + \cos^2\theta = 1$

$\tan^2\theta + 1 = \sec^2\theta$

Question 10

Your answer is CORRECT.

Which of the following is equivalent to $tan^4(\theta) + 2\,tan^2(\theta) + 1$?

a) $cos^2(\theta)$

b) $sec^4(\theta)$

c) $cot^2(\theta)$

d) $sec^2(\theta)$

e) $cos^4(\theta)$

f) None of the above.

$(\tan^2\theta + 1)(\tan^2\theta + 1)$

$(\sec^2\theta)(\sec^2\theta) = \sec^4\theta$

Question 11

Your answer is CORRECT.

Which of the following is equivalent to

$$\frac{tan(\theta) - cot(\theta)}{tan(\theta) + cot(\theta)} + cos^2(\theta)$$

a) 1

b) $sin^2(\theta)$

c) 0

d) $cos^2(\theta)$

$$\frac{\frac{\sin\theta}{\cos\theta} - \frac{\cos\theta}{\sin\theta}}{\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta}} + \cos^2\theta$$

$$\frac{\frac{\sin^2\theta - \cos^2\theta}{\sin\theta\cos\theta}}{\frac{\sin^2\theta + \cos^2\theta}{\sin\theta\cos\theta}} + \cos^2\theta = \frac{\sin^2\theta - \cos^2\theta}{\sin\theta\cos\theta} \cdot \frac{\sin\theta\cos\theta}{1} + \cos^2\theta$$

$\sin^2\theta + \cos^2\theta = 1$

$= \sin^2\theta - \cos^2\theta + \cos^2\theta$

$= \sin^2\theta$

e) $-\sin^2(\theta)$

f) None of the above.

Question 12

Your answer is CORRECT.

Which of the following is equivalent to

$$\frac{\tan(\theta) - \cot(\theta)}{\tan(\theta) + \cot(\theta)} + 1$$

a) $2\sin^2(\theta)$

b) $2\cos^2(\theta)$

c) 0

d) 1

e) 2

f) None of the above.

$$\frac{\frac{\sin\theta}{\cos\theta} - \frac{\cos\theta}{\sin\theta}}{\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta}} + 1$$

$$\frac{\frac{\sin^2\theta - \cos^2\theta}{\sin\theta\cos\theta}}{\frac{\sin^2\theta + \cos^2\theta}{\sin\theta\cos\theta}} + 1 \qquad \sin^2\theta + \cos^2\theta = 1$$

$$\frac{\sin^2\theta - \cos^2\theta}{\sin\theta\cos\theta} \cdot \frac{\sin\theta\cos\theta}{1} + 1 \qquad \sin^2\theta = 1 - \cos^2\theta$$

$$\sin^2\theta - \cos^2\theta + 1$$

$$\sin^2\theta + [1 - \cos^2\theta]$$

$$\sin^2\theta + \sin^2\theta = 2\sin^2\theta$$