

**A2.A.68: Trigonometric Equations 2: Solve trigonometric equations for all values of the variable from  $0^\circ$  to  $360^\circ$**

- 1 Which value of  $x$  does *not* satisfy the equation  $\sin^2 x + \sin x = 0$ ?  
1)  $\frac{\pi}{2}$  2)  $2\pi$  3)  $\frac{3}{2}\pi$  4)  $\pi$
- 2 Which is a solution for the equation  $\sin^2 \theta + 4 \sin \theta = 0$ ?  
1)  $\frac{\pi}{6}$  2)  $\frac{\pi}{2}$  3)  $\pi$  4)  $\frac{3\pi}{2}$
- 3 Which value of  $\theta$  satisfies the equation  $2 \cos^2 \theta - \cos \theta = 0$ ?  
1)  $\frac{\pi}{3}$  2)  $\frac{\pi}{4}$  3)  $\frac{\pi}{6}$  4)  $0$
- 4 Which value of  $\theta$  satisfies the equation  $2 \sin^2 \theta - 5 \sin \theta - 3 = 0$ ?  
1)  $300^\circ$  2)  $210^\circ$  3)  $150^\circ$  4)  $30^\circ$
- 5 In the interval  $0^\circ \leq \theta < 360^\circ$ , how many values of  $\theta$  satisfy the equation  $\sin^2 \theta = \frac{1}{4}$ ?  
1) 1 2) 2 3) 3 4) 4
- 6 If  $\theta$  is an angle in Quadrant I and  $\tan^2 \theta - 4 = 0$ , what is the value of  $\theta$  to the *nearest degree*?  
1) 1 2) 2 3) 63 4) 75
- 7 In the interval  $0 \leq x \leq 2\pi$ , the solutions of the equation  $\sin^2 x = \sin x$  are  
1)  $0, \frac{\pi}{2}, \pi$  2)  $\frac{\pi}{2}, \frac{3\pi}{2}$  3)  $0, \frac{\pi}{2}, \frac{3\pi}{2}$   
4)  $\frac{\pi}{2}, \pi, \frac{3\pi}{2}$
- 8 In the interval  $0^\circ \leq \theta \leq 360^\circ$ , how many values of  $\theta$  satisfy the equation  $3 \sin^2 \theta + \sin \theta - 2 = 0$ ?  
1) 1 2) 2 3) 3 4) 4
- 9 Which values of  $x$  in the interval  $0^\circ \leq x < 360^\circ$  satisfy the equation  $2 \sin^2 x + \sin x - 1 = 0$ ?  
1)  $\{30^\circ, 270^\circ\}$  2)  $\{30^\circ, 150^\circ, 270^\circ\}$   
3)  $\{90^\circ, 210^\circ, 330^\circ\}$  4)  $\{90^\circ, 210^\circ, 270^\circ, 330^\circ\}$
- 10 In the interval  $0^\circ \leq \theta \leq 360^\circ$ , how many values of  $\theta$  satisfy the equation  $\tan^2 \theta - 3 \tan \theta + 2 = 0$ ?  
1) 1 2) 2 3) 3 4) 4
- 11 What is the total number of solutions for the equation  $3 \tan^2 A + \tan A - 2 = 0$  in the interval  $0 \leq A \leq \pi$ ?  
1) 1 2) 2 3) 3 4) 4

# **A2.A.68: Trigonometric Equations 2: Solve trigonometric equations for all values of the variable from $0^\circ$ to $360^\circ$**

## **Answer Section**

1 ANS: 1 REF: 088929siii

2 ANS: 3 REF: 088425siii

3 ANS: 1 REF: 080023siii

4 ANS: 2 REF: 069930siii

5 ANS: 4 REF: 088732siii

6 ANS: 3 REF: 019919siii

7 ANS: 1 REF: 019528siii

8 ANS: 3 REF: 068033siii

9 ANS: 2

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

$$\sin x = \frac{1}{2}, -1$$

$$x = 30, 150, 270$$

REF: 081514a2

10 ANS: 4 REF: 018434siii

11 ANS: 2 REF: 069027siii