Name_____

Double angle trigonometric Equation

Date_____

Solve each equation for $0 \leq \theta < 2\pi$.

1) $3\sin \theta + \cos 2\theta + 4\sin^2 \theta = 0$

2) $3\sin 2\theta = 2\cos \theta + 4\sin 2\theta$

3) $\sqrt{2}\sin \theta - \sin 2\theta = 0$

4) $8 - \cos 2\theta = 10\cos^2 \theta$

5) $\cos 2\theta = \cos \theta$

6) $\cos^2 \theta = \cos 2\theta$

7) $\sqrt{3}\cos \theta - 3\sin 2\theta = -2\sin 2\theta$

8) $\cos \theta + \cos 2\theta = 0$

9) $-\sqrt{2}\cos \theta - 3\cos \theta = \sin 2\theta - 3\cos \theta$

10) $\cos 2\theta + 6\sin^2 \theta = 2$

Answers to Double angle trigonometric Equation

1) $\left\{\dfrac{7\pi}{6}, \dfrac{3\pi}{2}, \dfrac{11\pi}{6}\right\}$

2) $\left\{\dfrac{\pi}{2}, \dfrac{3\pi}{2}\right\}$

3) $\left\{0, \dfrac{\pi}{4}, \pi, \dfrac{7\pi}{4}\right\}$

4) $\left\{\dfrac{\pi}{6}, \dfrac{5\pi}{6}, \dfrac{7\pi}{6}, \dfrac{11\pi}{6}\right\}$

5) $\left\{0, \dfrac{2\pi}{3}, \dfrac{4\pi}{3}\right\}$

6) $\{0, \pi\}$

7) $\left\{\dfrac{\pi}{3}, \dfrac{\pi}{2}, \dfrac{2\pi}{3}, \dfrac{3\pi}{2}\right\}$

8) $\left\{\dfrac{\pi}{3}, \pi, \dfrac{5\pi}{3}\right\}$

9) $\left\{\dfrac{\pi}{2}, \dfrac{5\pi}{4}, \dfrac{3\pi}{2}, \dfrac{7\pi}{4}\right\}$

10) $\left\{\dfrac{\pi}{6}, \dfrac{5\pi}{6}, \dfrac{7\pi}{6}, \dfrac{11\pi}{6}\right\}$