Assignment : Double angle trigonometric equation

Solve each equation using radians. For equations that use θ, restrict your answers to $[0, 2\pi)$.
For ones that use x, provide all solutions.

1) $3\sin 2\theta - \cos \theta = 2\sin 2\theta$

2) $\cos 2\theta - 4 + 6\sin^2 \theta = 0$

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

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

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

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

6) $0 = -2\sin \theta - \sin 2\theta$

7) $-2\sin 2\theta = \sin \theta - 3\sin 2\theta$

8) $-3\sin 2\theta = -4\sin 2\theta - \sqrt{2}\sin \theta$

9) $2\cos \theta + 2\sin 2\theta = 3\sin 2\theta$

10) $\cos 2\theta - \cos^2 \theta = 0$

Answers to Assignment : Double angle trigonometric equation

1) $\left\{\dfrac{\pi}{6}, \dfrac{\pi}{2}, \dfrac{5\pi}{6}, \dfrac{3\pi}{2}\right\}$

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

3) $\left\{0, \dfrac{5\pi}{6}, \pi, \dfrac{7\pi}{6}\right\}$

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

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

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

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

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

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

10) $\left\{0, \pi\right\}$