

pg. 584-585

$$21) 0, \pi, \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$$

$$\sin 2x \cos x - \sin x = 0$$

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$$50) \frac{1}{2}$$

$$61) 0, \pi$$

$$53) \frac{\sqrt{2}}{2}$$

$$65) .864, 4.006, 2.972, 6.114$$

$$61) 0, \pi$$

$$65) .864, 4.006, 2.972, 6.114$$

Jan 19-3:53 PM

Formulas you might need today:

$$\cos 2x = 2\cos^2 x - 1$$

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

$$\cos 2x = \cos^2 x - \sin^2 x$$

$$6. \quad \sin 2x - \sin x = 0$$

$$6A. \quad \cos 2x - \sin x = 1$$

Feb 9-7:40 AM

Chpt 8 day 6

Trig Equations Mixed Problems:

1. $2 \cos \theta + 5 = 4 \cos \theta + 6$

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

$$\cos \theta = -\frac{1}{2}$$

$$\alpha = \frac{\pi}{3}$$

$$\left\{ \frac{2\pi}{3}, \frac{4\pi}{3} \right\}$$

2. Solve $\tan^2 \theta = \tan \theta$

$$\tan^2 \theta - \tan \theta = 0$$

$$\tan \theta (\tan \theta - 1) = 0$$

$$\tan \theta = 0 \quad \tan \theta = 1$$

$$\theta = 0, \pi$$

$$\alpha = \frac{\pi}{4}$$

$$\theta = \frac{\pi}{4}, \frac{5\pi}{4}$$

$$\left\{ 0, \frac{\pi}{4}, \pi, \frac{5\pi}{4} \right\}$$

Jan 19-8:54 AM

3. Solve $\sin^2 \theta - 4 \sin \theta + 1 = 0$

$$b^2 - 4ac = 16 - 4(1)(1) = 12$$

$$\sin \theta = \frac{4 \pm \sqrt{12}}{2}$$

+

$$\sin \theta = 3.73205$$

 $\emptyset$

-

$$\sin \theta = .267949 \dots$$

$$\alpha = .2713$$

$$\theta_1 = \alpha$$

$$\theta_{11} = 2.8703$$

$$\{.2713, 2.8703\}$$

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

$$1 - \cos^2\theta + \cos\theta + 1 = 0$$

$$-\cos^2\theta + \cos\theta + 2 = 0$$

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

$$(\cos\theta - 2)(\cos\theta + 1) = 0$$

$$\cos\theta = 2 \quad \cos\theta = -1$$

$$\emptyset$$

$$\theta = \pi$$

$$\{\pi\}$$

5. $\csc x = 2 \cos x \csc x$

$$2 \cos x \csc x - \csc x = 0$$

$$\csc x (2 \cos x - 1) = 0$$

$$\csc x = 0$$

$$\sin x = \frac{1}{0}$$

$$\emptyset$$

$$\cos x = \frac{1}{2}$$

$$\alpha = \frac{\pi}{3}$$

$$x_1 = \frac{\pi}{3}$$

$$x_{iv} = \frac{5\pi}{3}$$

$$\left\{ \frac{\pi}{3}, \frac{5\pi}{3} \right\}$$

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6. $\sin 2x - \sin x = 0$

$$2 \sin x \cos x - \sin x = 0$$

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

$$\sin x = 0 \quad \cos x = \frac{1}{2}$$

$$x = 0, \pi \quad x = \frac{\pi}{3}, \frac{5\pi}{3}$$

(same as #6)

$$\left\{ 0, \frac{\pi}{3}, \pi, \frac{5\pi}{3} \right\}$$

7. $\sec^2 x - 4 = 0$

$$\sec^2 x = 4$$

$$\cos x = \pm \frac{1}{2}$$

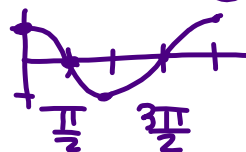
$$\alpha = \frac{\pi}{3}$$

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

6A. $2 \sin x \cos x + \cos x = 0$

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

$$\cos x = 0$$



$$2 \sin x + 1 = 0$$

$$2 \sin x = -1$$

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

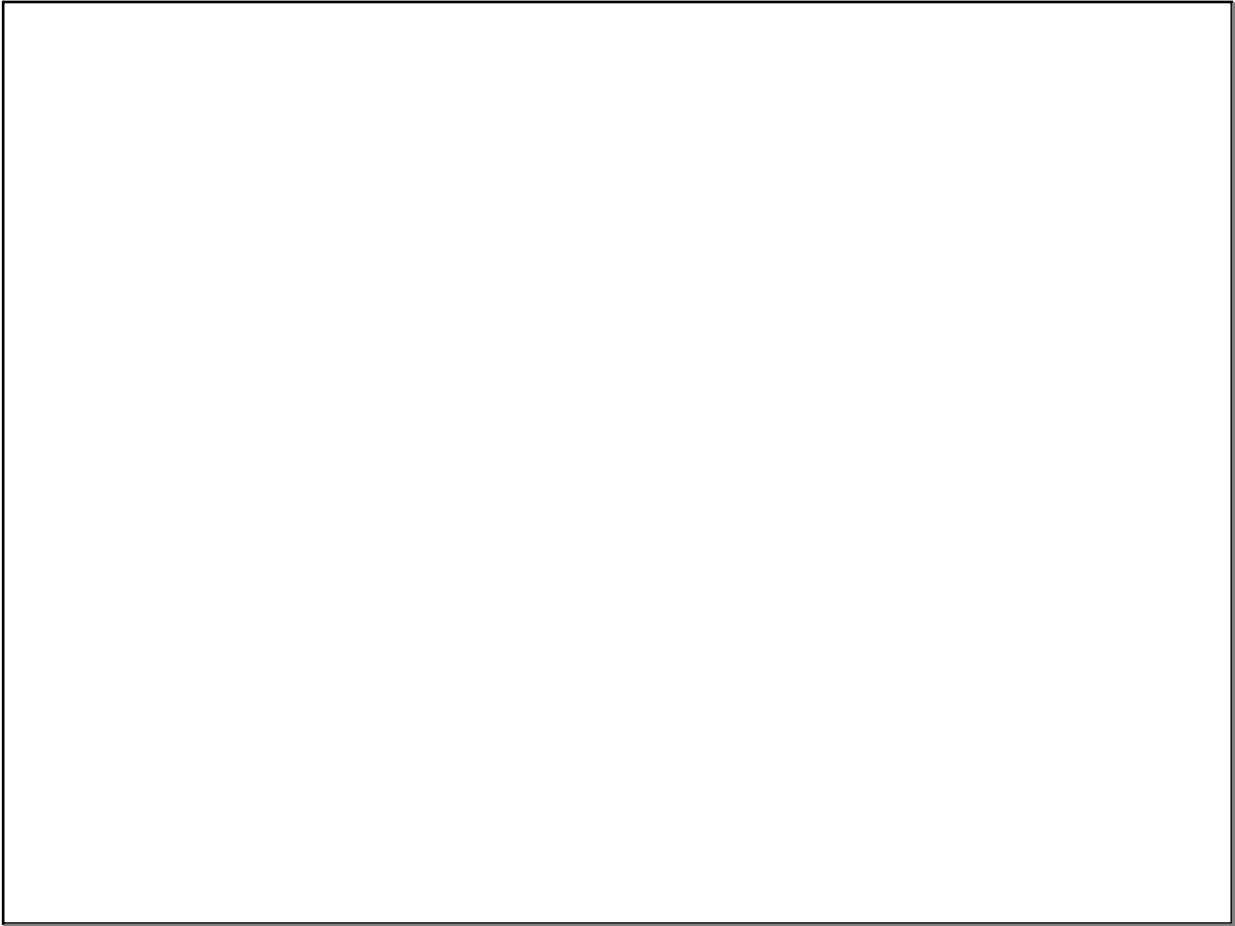
$$\alpha = \frac{\pi}{6}$$

Q III $\frac{7\pi}{6}$

Q IV $\frac{11\pi}{6}$

$$\left\{ \frac{\pi}{2}, \frac{7\pi}{6}, \frac{3\pi}{2}, \frac{11\pi}{6} \right\}$$

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Feb 9-10:27 AM