r 5 Review

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dentities

- Pythagorean
- Top 8 (Basic)

gebra

Distribute/Foil

Factor

combine or Break up fractions

B) Solving

- Set = 0
- Try to get one trig
- Factor & set each part
- Solve using graph or

420 #11-14, 17-22, 25, 26, 29-42

$$\frac{1}{\cot^2\theta + 1} = \sin^2\theta$$

$$\frac{1}{\csc^2\theta}$$

$$\sin^2\theta$$

(12) $$\frac{\tan\theta}{1-\cos^2\theta} = \sec\theta\csc\theta$$

$$\frac{\tan\theta}{\sin^2\theta}$$

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

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

$9(\csc^2\theta - 1) = 1$

$9 \cdot \cot^2\theta$

$\theta \cdot \frac{1}{\tan^2\theta}$

1

(14) $\cot^2\theta \cdot (\sin^2\theta) = \cos^2\theta$

$\frac{\cos^2\theta}{\sin^2\theta} \cdot \sin^2\theta$

$\cos^2\theta$

$+\cos^2\theta \cot^2\theta = \cot^2\theta$

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

$\theta \cdot \csc^2\theta$

$^2\theta \cdot \frac{1}{\sin^2\theta}$

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

$\cot^2\theta$

(18) $\tan^2\theta \csc^2\theta - \tan^2\theta =$

$\tan^2\theta(\csc^2\theta - 1) =$

$\tan^2\theta \cdot \cot^2\theta$

$\cancel{\tan^2\theta} \cdot \frac{1}{\cancel{\tan^2\theta}}$

1

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

$+1)(\tan\theta + 1)\cos\theta$

$+ 2\tan\theta + 1)\cos\theta$

$\theta + 2\tan\theta)\cos\theta$

$\theta\cos\theta + 2\tan\theta\cos\theta$

$\cdot \frac{1}{\sec\theta} + 2\frac{\sin\theta}{\cos\theta}\cdot\cos\theta$

$\sec\theta + 2\sin\theta$

20 $(\sec\theta - \tan\theta)^2$

$(\sec\theta - \tan\theta)(\sec\theta - \tan$

$\sec^2\theta - 2\sec\theta\tan\theta + \tan^2$

21 $\frac{1}{\csc\theta+1}\frac{(\csc\theta-1)}{} - \frac{1}{\csc\theta-1}\frac{(\csc\theta+1)}{} = \frac{\csc\theta - 1 - (\csc\theta + 1)}{(\csc\theta+1)(\csc\theta-1)}$

$\frac{\csc\theta - 1 - \csc\theta - 1}{\csc^2\theta - 1} = \frac{-2}{\cot^2\theta} = -2\tan^2\theta$

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

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

$$\frac{(1+\sin\theta)\cancel{(1-\sin\theta)}}{\cancel{1-\sin\theta}}$$

$$1+\sin\theta$$

(23) $\cos\theta(\tan^2\theta+1) = \sec\theta$

$$\cos\theta \cdot \sec^2\theta$$

$$\frac{1}{\cancel{\sec\theta}} \cdot \sec^{\cancel{2}}\theta$$

$$\sec\theta$$

(26) $\sec^2\theta \cot\theta - \cot\theta = \tan\theta$

$\cot\theta(\sec^2\theta - 1)$

$\cot\theta \cdot \tan^2\theta$

$\frac{1}{\cancel{\tan\theta}} \cdot \tan^{\cancel{2}}\theta$

$\tan\theta$

(29) $\frac{1}{\tan\theta\csc\theta} = \cos\theta$

$\cot\theta\sin\theta$

$\frac{\cos\theta}{\cancel{\sin\theta}} \cdot \cancel{\sin\theta}$

$\cos\theta$

(30) $\dfrac{1}{\tan\theta \sin\theta \csc\theta} = \cot\theta$

$$\frac{1}{\tan\theta \cdot \cancel{\sin\theta} \cdot \frac{1}{\cancel{\sin\theta}}}$$

$$\frac{1}{\tan\theta}$$

$$\cot\theta$$

(31)

$\sin^5\theta\cos^2\theta = (\cos^2\theta - 2\cos^4\theta + \cos^6\theta)\sin$

$\sin\theta(1-\cos^2\theta)(1-\cos^2\theta)\cos^2\theta$

Foil

$\sin\theta(1 - 2\cos^2\theta + \cos^4\theta)\cos^2\theta$

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

32 $\cos^3\theta \sin^2\theta = (\sin^2\theta - \sin^4\theta)\cos\theta$

$\cos\theta(1-\sin^2\theta)\sin^2\theta$

$\cos\theta(\sin^2\theta - \sin^4\theta)$

$\ln\theta = \sqrt{3} - \sin\theta$

$\ln\theta + \sin\theta - \sqrt{3} = 0$

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

$\sin\theta = \frac{\sqrt{3}}{2}$

$\frac{\pi}{3}, \frac{2\pi}{3}$

35 $3\sqrt{3}\tan\theta = 3$

$\tan\theta = \frac{3}{3\sqrt{3}}$

$\tan\theta = \frac{1}{\sqrt{3}}$

$\boxed{\frac{\pi}{6}, \frac{7\pi}{6}}$

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

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

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

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

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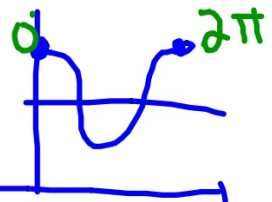


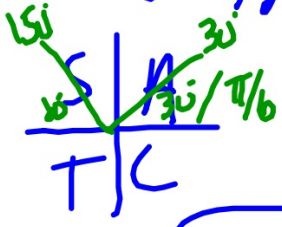
$\boxed{0, \frac{2\pi}{3}, \frac{4\pi}{3}, 2\pi}$

(40) $2\sin^2\theta - 3\sin\theta = -1$

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

$(2\sin\theta - 1)(\sin\theta - 1) =$

$\sin\theta = \frac{1}{2}$ | $\sin\theta = 1$



$\boxed{\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}}$

$\theta + \sin\theta = 1$

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

$\sin^2\theta + \sin\theta = 0$

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

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

$\sin\theta = 0$ | $\sin\theta = 1$

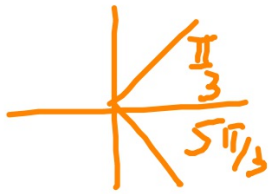
$0, \pi/2, \pi, 2\pi$

(34) $4\cos\theta = 1 + 2\cos\theta$

$4\cos\theta - 2\cos\theta - 1 = 0$

$2\cos\theta - 1 = 0$

$\cos\theta = 1/2$



$\theta = \pi/3, 5\pi/3$

(36) $\frac{1}{2}\sec\theta - 1 = 0$

$\frac{1}{2}\sec\theta = 1$

$\sec\theta = 2$

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

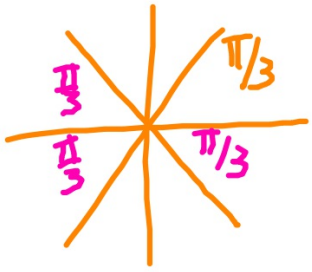
$\theta = \frac{\pi}{3}, \frac{5\pi}{3}$

(37) $3\csc^2\theta = 4$

$\csc^2\theta = \frac{4}{3}$

$\csc\theta = \pm\sqrt{4/3} = \pm\frac{2}{\sqrt{3}}$

$\sin\theta = \pm\frac{\sqrt{3}}{2}$



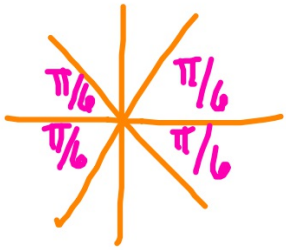
$\theta = \pi/3, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$

(38) $4\tan^2\theta - 1 = \tan^2\theta$

$3\tan^2\theta - 1 = 0$

$\tan^2\theta = \frac{1}{3}$

$\tan\theta = \pm\sqrt{1/3} = \pm\sqrt{3}/3$



$\theta = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

(42) $\sin^2\theta + 2\cos\theta = 2$

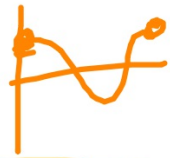
$1 - \cos^2\theta + 2\cos\theta - 2 = 0$

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

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

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

$\cos\theta = 1$



$\theta = 0, 2\pi$