Trig Equations II (4.4) p211 day 8

take up Quiz 6

Quiz 6

1. Find the size of the angle in radians if the arc length is 24 cm and the radius is 11 cm.

2. Give the exact value of each of these trig ratios.

$\sin\frac{2\pi}{3}$ $\tan\frac{11\pi}{6}$ $\cos\frac{-\pi}{4}$ $\sec\frac{11\pi}{4}$

3. If $\sin\theta = \frac{3}{5}$ and θ is in the second quadrant, give the exact value of $\cos\theta$

4. Convert 280° to radians. Express answer to the nearest hundredth.

5. A Ferris Wheel with diameter of 15 m makes one revolution every two minutes. What is the speed of a seat on the rim of the wheel in km/h?

6. Find 1 positive and 1 negative angle co-terminal with $\frac{5\pi}{3}$. Answer in radians.

7. Tupperware designs their rectangular containers so that the length is twice the width, and the height is 5 more than the width. If the volume of a container is 980 cm³, what are the dimensions?

8. Create a polynomial function with a double root at -2, a root at 3 and a y-intercept of 36.

10.b $\cot\theta = 1$ $\tan\theta = 1$ $[-\pi, 2\pi)$ $[0, 2\pi)$

$\frac{\pi}{4}$, $-\frac{3\pi}{4}$, $\frac{5\pi}{4}$, -2π, $-\frac{3\pi}{4}$

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HW: p211#5bc, 7c, 11

7. c) $\sin\theta(\sin\theta - 1) = 0$

$\sin\theta = 0$ $\theta = 0, \pi$

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

5. Solve each e
domain.
a) $3\cos\theta - 1 = 4\cos\theta$, 0
b) $\sqrt{3}\tan\theta + 1 = 0$, $-\pi \le$
c) $\sqrt{2}\sin x - 1 = 0$, $-360°$

7. Solve for θ
solutions a
Otherwise,
the nearest
a) $2\cos^2\theta$
b) $\tan^2\theta -$

11. What is t
how you

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ex1: Solve $\tan^2\theta - 5\tan\theta + 4 = 0$ on $[0, 2\pi)$ rad

let $\tan\theta = x$

$x^2 - 5x + 4 = 0$

$(x-1)(x-4) = 0$

$x = 1$ $x = 4$

$\therefore \tan\theta = 1$ $\tan\theta = 4$

$\theta = \frac{\pi}{4}, \frac{5\pi}{4}$ $\theta = 1.33$ $\theta + \pi = 4.47$

7a

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ex2: Solve $\cos^2 x - 0.25 = 0$ on $[0, 2\pi)$

difference of squares

$(\cos x - 0.5)(\cos x + 0.5) = 0$

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

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

$x^2 - 16$

$\cos^2 x = 0.25$

$\cos x = \pm 0.5$

$x = \frac{\pi}{3}\ \frac{2\pi}{3}\ \frac{4\pi}{3}\ \frac{5\pi}{3}$

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ex3: Find all solutions to $\sin x \tan x = \sin x$

$\sin x \tan x - \sin x = 0$

$\sin x(\tan x - 1) = 0$

$\sin x = 0$ $\tan x = 1$

$x = 0, \pi, 2\pi, 3\pi, \ldots$ $x = \frac{\pi}{4}, \frac{5\pi}{4}, \frac{9\pi}{4}, \frac{13\pi}{4}, \ldots$

$x = n\pi$ $x = \frac{\pi}{4} + n\pi$

n is an integer

$\frac{\pi}{4}$

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ex4: Find the general solution for $2\cos\theta+\sqrt{3}=0$

formula

$2\cos\theta=-\sqrt{3}$

$\cos\theta=-\frac{\sqrt{3}}{2}$

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

$\theta=\frac{5\pi}{6}+2n\pi$ $\theta=\frac{7\pi}{6}+2n\pi$

2

p217#23a

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HW: p211#3d, 5df, 7b, 17