

$$4\sin^2\theta - 3 = 0$$

$$4u^2 - 3 = 0$$

$$a = 4, b = 0, c = -3$$

$$b^2 - 4ac = 0^2 - 4(4)(-3)$$

$$= 48$$

$$u = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{\pm \sqrt{48}}{2(4)}$$

$$= \frac{\pm 4\sqrt{3}}{8} = \frac{\pm \sqrt{3}}{2}$$

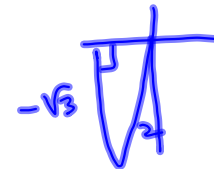
$$4u^2 - 3 = 4u^2 + 0u - 3$$

$$a = 4, b = 0, c = -3$$

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



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



If $0 \leq \theta \leq 2\pi$, then.

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

$$\theta \in \left\{ \frac{n\pi}{3} \mid n = 1, 2, 4, 5 \right\} \text{ to get cuts.}$$

If no restriction on θ , then

$$\theta = \frac{\pi}{3} + 2n\pi$$

OR

$$\frac{2\pi}{3} + 2n\pi$$

OR

$$\frac{4\pi}{3} + 2n\pi$$

OR

$$\frac{5\pi}{3} + 2n\pi$$

} $n \in \mathbb{Z}$

Test: 2 days' worth

About 50 pts each part.

Lots of bonus.

you can earn up to 10 pts of bonus.

I'll grade the 1st 10 pts attempted.

Be sure to cross out a bonus prob you
start & give up on. WRITE OMIT
over it.

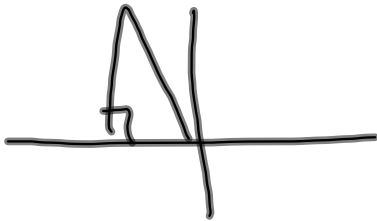
Some overlap between Pt 1 & Pt 2

Separate Paper

submit probs in order!

If you stall on a problem, start a fresh page!

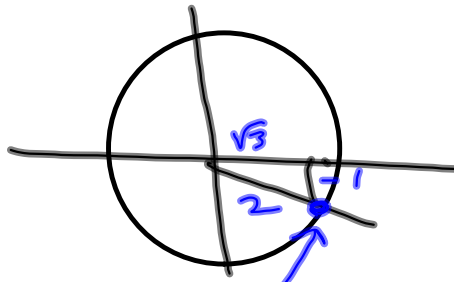
$$112^{\circ}30' = 112.5^{\circ} = \frac{225^{\circ}}{2}$$



$$\begin{aligned}\sin^2 x \cos^2 x &= \left(\frac{1 - \cos(2x)}{2} \right) \left(\frac{1 + \cos(2x)}{2} \right) \\ &= \frac{1}{4} (1 - \cos(2x))(1 + \cos(2x)) \\ &= \frac{1}{4} (1 - \cos^2(2x)) = \frac{1}{4} - \frac{1}{4} \cos^2(2x)\end{aligned}$$

Pt on unit circle corresponding to

$$\theta = \frac{11\pi}{6}$$



$$\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right) = (\cos \theta, \sin \theta)$$

Arc length:

length of arc subtended by an angle of 98° on a circle of diameter of 13 inches.

$$35389$$

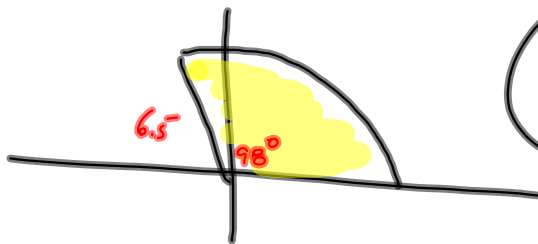
$$3.5389\pi \text{ inches.}$$

$$s = r\theta$$

$$= (6.5) (98^\circ) \left(\frac{\pi}{180}\right) \approx 11.177 \text{ in}$$

All the way around:
 $2\pi r$
 θr

Area of the sector in previous.



All the way around:
 $Area = \pi r^2$
 $\theta = 2\pi$
 $\frac{\theta}{2} = \pi$

$$Area = \frac{1}{2} \theta r^2$$

$$= \frac{1}{2} r^2 \theta$$

$$\left(\frac{98^\circ}{2}\right) (6.5)^2 \left(\frac{\pi}{180}\right)$$

$$\approx 36.1327 \text{ units}^2$$

Pythagorean
 Angle Sum
 odd/Even

$\cot = -\frac{1}{2}$

