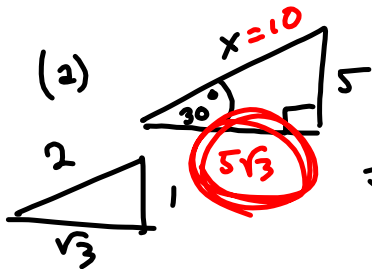


Test Questions ?

① solve w/o calculator for x



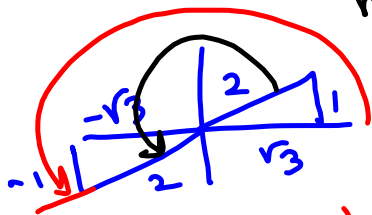
(c) $\csc(x) = \sqrt{2}$ Find

All solutions.

$$\frac{5}{x} = \sin 30$$

$$\frac{5}{\frac{5}{2}} = x = 10$$

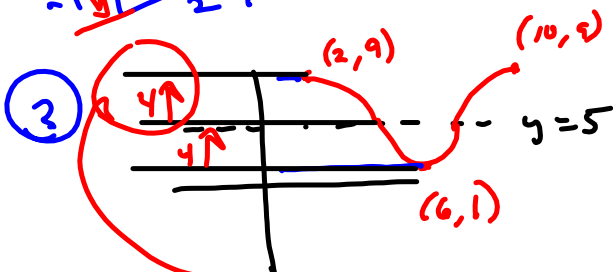
(b) $\tan(x) = \frac{1}{\sqrt{3}}$ Find all solutions!



$$30^\circ + 360^\circ n, n \in \mathbb{Z} \quad \frac{\pi}{6} + \pi n, n \in \mathbb{Z}$$

$$210^\circ + 360^\circ n, n \in \mathbb{Z} \quad \frac{7\pi}{6} + 2\pi n, n \in \mathbb{Z}$$

$$(30^\circ) \left(\frac{\pi}{180^\circ} \right) = \frac{\pi}{6}$$



write the cosine function that fits the picture.

③ Graph $4 \cos\left(\frac{\pi}{8}(x-2)\right) + 5$

Period = $T = 10 - 2 = 8$

$2bx = 2\pi$ when $x = 8$, so,

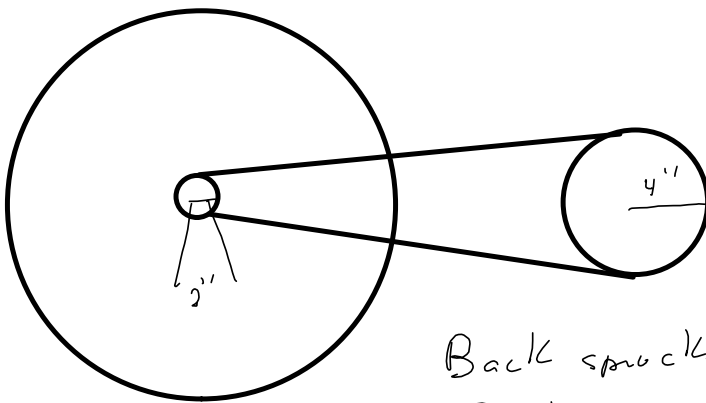
$2b(8) = 2\pi$

$16b = 2\pi$

$b = \frac{\pi}{8}$

Start High point @ $x=2$
midline: $y=5$

④ How fast is the bike?

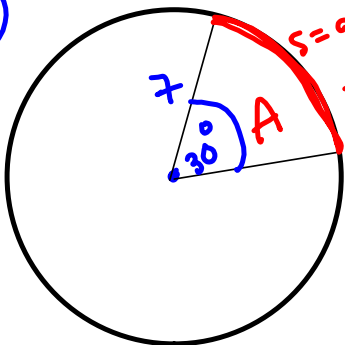


Back sprocket 2" radius.
Front " 4" "

Rear wheel 12" radius

Pedaling 2 revolutions per second.

⑤



s = arc length

A = area.

What's the arc length and the area of the sector?

Graph: $\csc(x)$, $\sec(x)$, $\cot(x)$

(6) Graph: $\sin(x)$, $\cos(x)$, $\tan(x)$
 $\arcsin(x)$, $\arccos(x)$, $\arctan(x)$

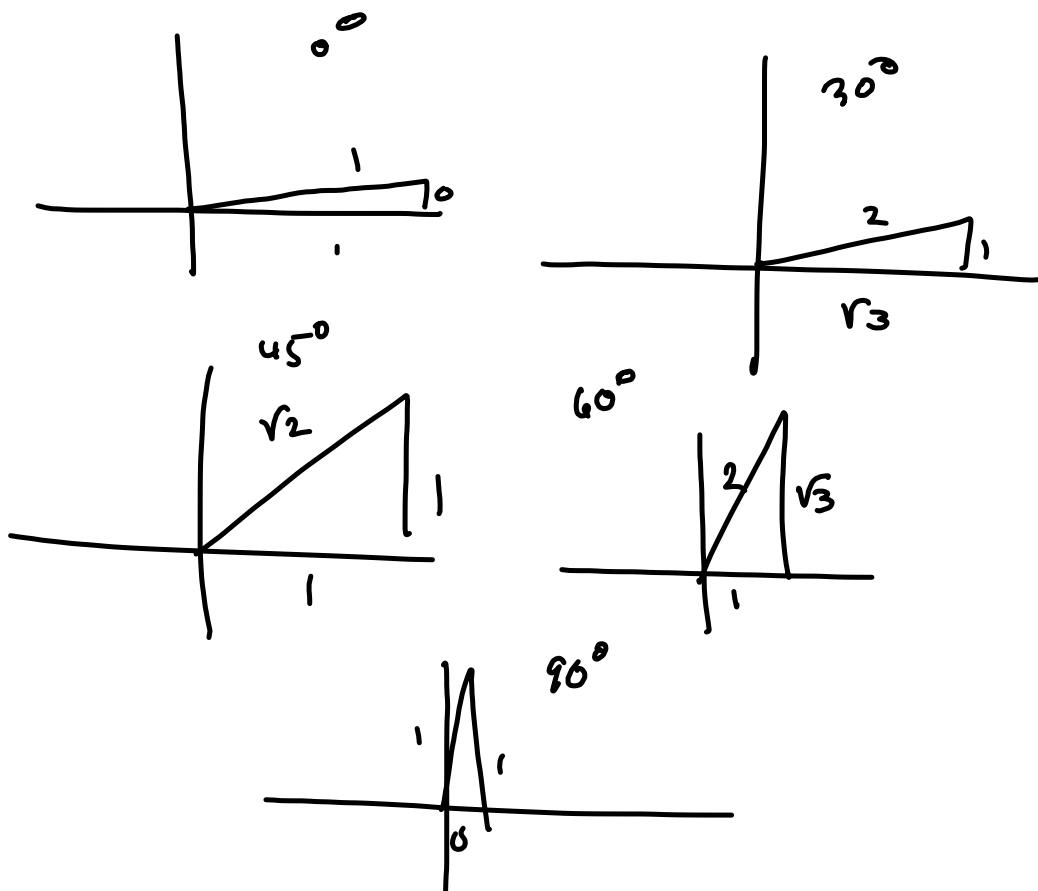
Less important, now, but needed, eventually:
 $\operatorname{arccsc}(x)$, $\operatorname{arcsec}(x)$, $\operatorname{arccot}(x)$

(7) Evaluate $\operatorname{arcsec}(1.7) = \theta = \arccos\left(\frac{1}{1.7}\right)$
 $\approx .9419214013$ radians.



```
cos-1(1/1.7)
.9419214013
```

No $\sec^{-1}(x)$
 key on
 calculator, so
 $\cos^{-1}\left(\frac{1}{x}\right)$
 $= \arccos\left(\frac{1}{x}\right)$



$$(\sqrt{x})^2 = x$$

$$\sqrt{x^2} = |x|$$

$$\sqrt{(-3)^2} = \sqrt{9} = 3$$

$$\sqrt{3^2} = \sqrt{9} = 3$$

$$\sqrt{\cos^2 \theta} = |\cos \theta|$$

$$(x+3)^2 = 16$$

$$\sqrt{(x+3)^2} = \sqrt{16}$$

$$|x+3| = 4$$

$$x+3 = \pm 4$$

$$x+3 = 4$$

or

$$x+3 = -4$$

just like

$|x|$