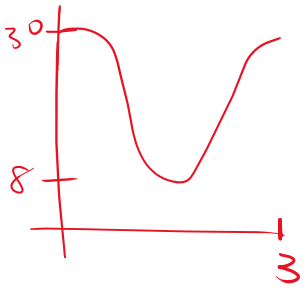
The pedals on a bicycle has a maximum of 30 cm above the ground and a minimum distance of 8 cm above the ground. A person pedals at a constant rate of 20 cycles per minute. Determine a cosine function for this situation, assuming it starts from the maximum.



$VD = \frac{30+8}{2} = 19$

$Amp = 30 - 19 = 11$

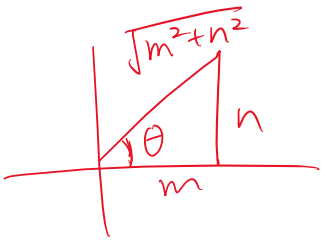
$Period = 3 = \frac{2\pi}{b}$

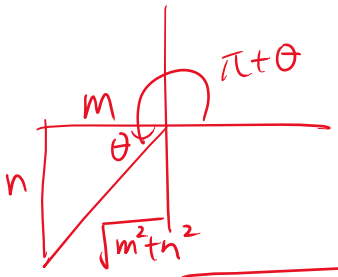
$b = \frac{2\pi}{3}$

$P.S = 0$

$$h(t) = 11\cos\frac{2\pi}{3}(t) + 19$$

The terminal arm of angle θ in standard position passes through the point (m, n) where m > 0, n > 0. Determine the value of $\sin(\pi + \theta)$





same reference angle as θ

3rd quadrant

$$\therefore \sin(\pi+\theta) = \frac{-n}{\sqrt{m^2+n^2}}$$