$$
\begin{aligned}
& 10 \sin \left(\frac{\pi}{8} x-\frac{\pi}{4}\right)+15 \\
& \frac{\pi}{8} x=2 \pi \text { when? } \\
& \frac{\frac{\pi}{4}}{\frac{\pi}{8}}=\frac{\pi}{4} \cdot \frac{8}{\pi}=2 \\
& x=2 \pi \cdot \frac{8}{\pi}=16=\text { Raiod } \\
& 10 \sin \left(\frac{\pi}{8}(x-2)\right)+15 \\
& \text { m.allin: } y=15 \\
& \text { Amp: } 10 \\
& \text { stants 20 } x=2
\end{aligned}
$$

High:17@x=-3
Low: -11@ $x=15$ Build a cosine

(2) Peniod: $15-(-3)=18 \quad(15,-11)$
is $\frac{1}{2}$-period.

$$
\begin{aligned}
& T=36 \\
& b x=2 \pi \quad \text { when } x=36 \\
& 36 b=2 \pi \quad a \cos \left(\frac{\pi}{18}(x-c)\right)+3 \\
& b=\frac{\pi}{18} \quad
\end{aligned}
$$

(3) stants @ $x=-3 \quad 2 \cos \left(\frac{\pi}{18}(x-(-3))\right)+3$
(4) Amplitude: $14 \cos \left(\frac{\pi}{8}(x+3)\right)+3$


Draw pics:


Suppose $\frac{\pi}{2}<\theta<\pi$. Find 6 twigs.

$$
\begin{array}{ll}
\sin \theta=\frac{3}{11} & \csc \theta=\frac{11}{3} \\
\cos \theta=-\frac{4 \sqrt{7}}{11} & \sec \theta=-\frac{11}{4 \sqrt{7}} \\
\tan \theta=-\frac{3}{4 \sqrt{7}} \cot \theta=-\frac{4 \sqrt{7}}{3}
\end{array}
$$

$$
\begin{aligned}
& S=r \theta \\
& A=2 \pi r=r \theta \\
&=\frac{1}{2}(2 \pi) r^{2}
\end{aligned}=\frac{1}{2} \theta r^{2} .
$$

$$
\begin{aligned}
& \sin (\arctan (3 x+2))=\sin \theta \\
& \frac{3 x+2}{\frac{a x^{2}+2 x+5}{\theta}}=\frac{3 x+2}{\sqrt{9 x^{2}+12 x+5}} \\
& \sqrt{(3 x+2)^{2}+1^{2}}=9 x^{2}+12 x+4+1 \\
& \tan (\arcsin (3 x))=\frac{3 x}{\sqrt{1-9 x^{2}}} \\
& \frac{1}{\sqrt{1-9 x^{2}}} \\
& \sqrt{1^{2}-(3 x)^{2}}=\sqrt{1-9 x^{2}}
\end{aligned}
$$





Sum is $10^{\circ}$ above hanson,
Tree's shadow is 5 hunnert feet long. How tall's the tree?


$$
\begin{aligned}
& \frac{x}{500}=\tan 10^{\circ} \\
& x=500 \tan 10^{\circ} \\
& \approx 88.1635 \mathrm{f}-\mathrm{t} \\
& 5^{\circ}+2 x
\end{aligned}
$$



$\tan x$


Find ALL Solutions of $(-\infty, \infty)$


