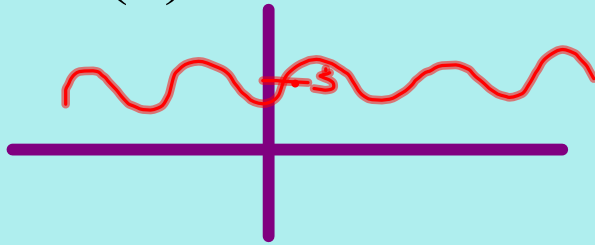


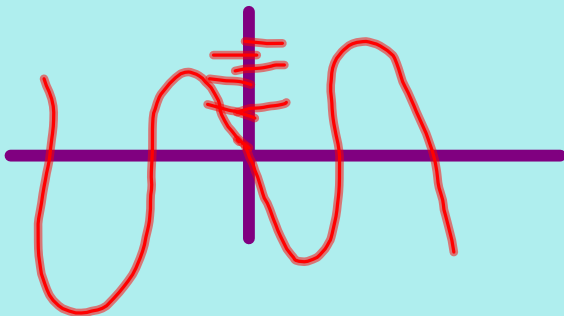
# Warm-up

Sketch a graph of:

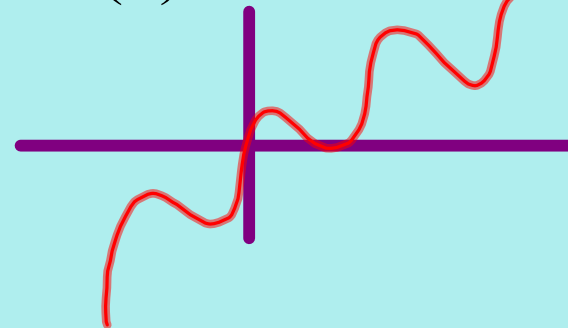
$$f(x) = 3 + \sin x$$



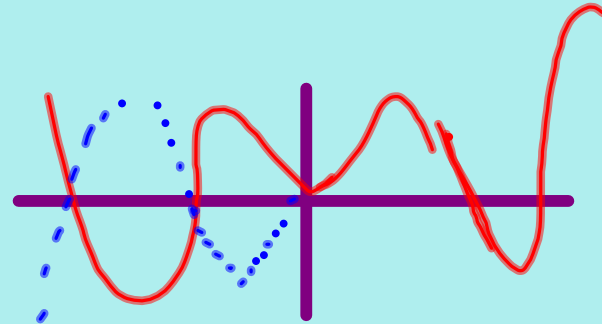
$$g(x) = 3 \sin x$$



$$h(x) = 3x + \sin x$$



$$j(x) = 3x \sin x$$



## Inverse Trigonometric Functions

What do they do?

$$f\left(\frac{\pi}{6}\right) = \frac{1}{2}$$

$$f(x) = \sin x$$
$$\frac{\pi}{6} \rightarrow \square \rightarrow \frac{1}{2}$$

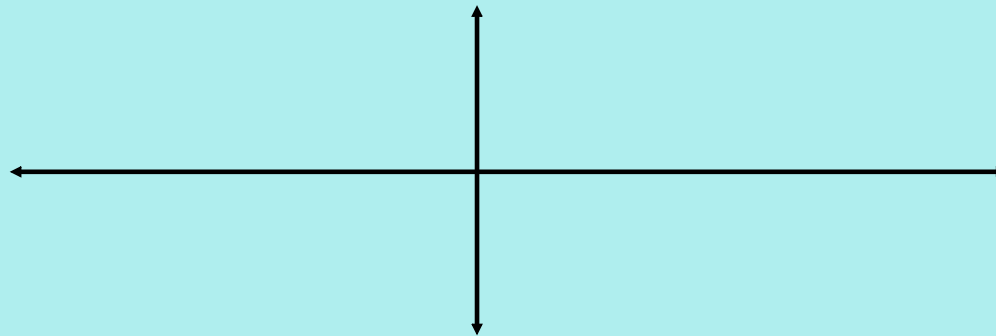
Notation

$$\frac{13\pi}{6} \rightarrow \square \rightarrow \frac{1}{2}$$

INVERSE

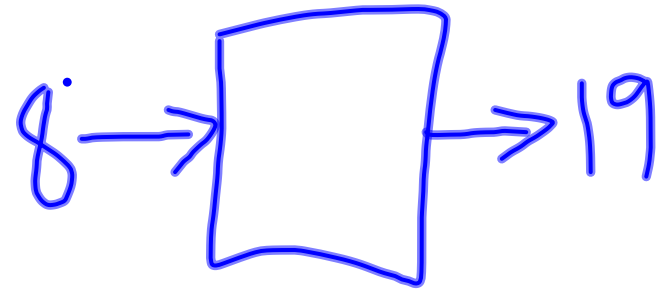
$$\frac{1}{2} \rightarrow \square \rightarrow \frac{\pi}{6}$$
$$\frac{13\pi}{6}$$

Graphically



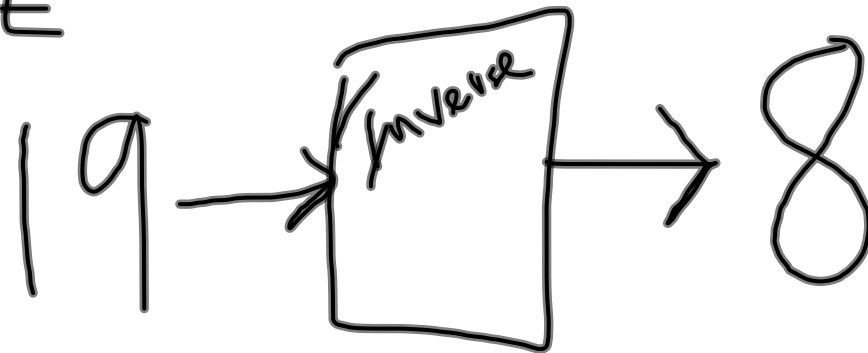
Domain and Range

$$f(x) = 2x + 3$$



$$f(8) = 19$$

↑  
INVERSE



## Using your Unit Circle

$$\sin^{-1}(1) = \frac{\pi}{2}$$

$$\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right) = \frac{5\pi}{4}$$

~~$$\sin^{-1}\left(\frac{\pi}{3}\right) = \emptyset$$~~

$$D: [-1, 1]$$

$$R: \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$$

Q1 & Q4

$$\frac{-\pi}{4}$$

# Using your Calculator