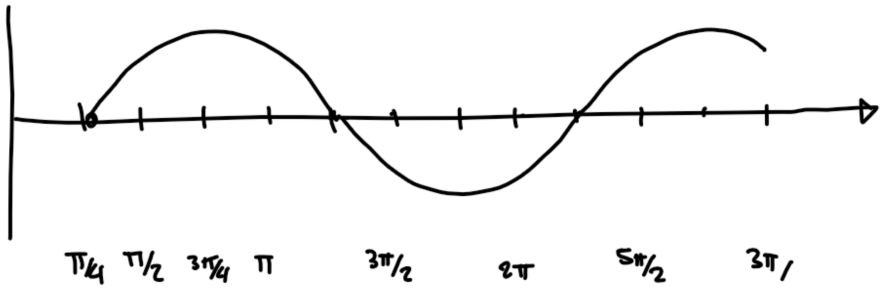
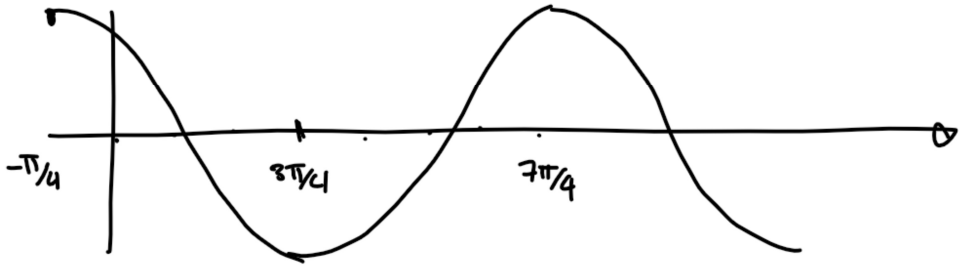
Translations and shifts for Sine and Cosine

Let $f(t) = \sin\left(t - \frac{\pi}{4}\right)$



- This has been shifted by an amount of $\pi/4$ to the right.
- Compare this to

$$g(t) = \cos\left(t + \frac{\pi}{4}\right)$$



Adding sine waves of different phases

$$\sin(t+h) + \sin(t-h)$$

$$= \sin(t)\cos(h) + \sin(h)\cos(t) + \sin(t)\cos(h) - \sin(h)\cos(t)$$

$$= \cos(h) \cdot \sin(t)$$

↑ This is not depend on t! So it defines the amplitude of our wave.