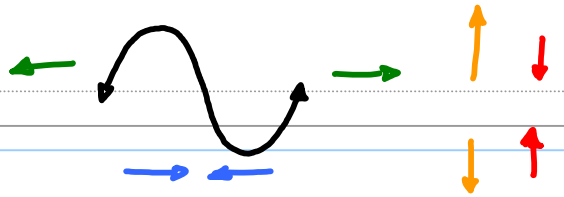


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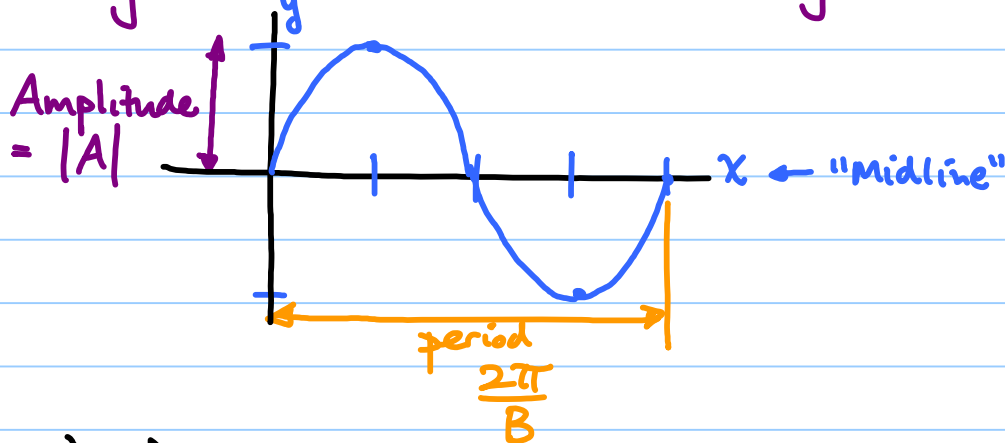
4.5] Graphs of Sine & Cosine

→ amplitude & period



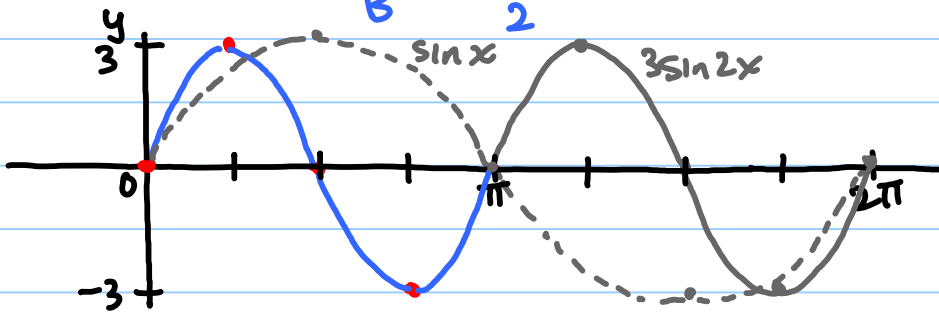
$$y = *A \sin Bx$$

$$y = A \cos Bx$$



ex) Determine the amplitude & period of $y = 3 \sin 2x$.
Then graph the function for $0 \leq x \leq 2\pi$.

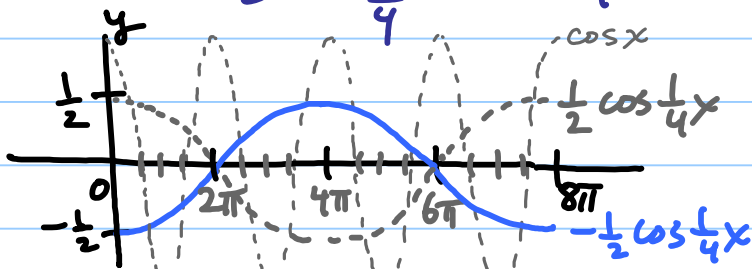
Amplitude = $|A| = |3| = 3$ ← "vertical stretch" ↑
Period = $\frac{2\pi}{B} = \frac{2\pi}{2} = \pi$ ← "horiz compression" ↓



ex) $y = \ominus \frac{1}{2} \cos \frac{1}{4}x$
A = -1/2, B = 1/4

Vert. reflection

Amplitude = $|A| = |-\frac{1}{2}| = \frac{1}{2}$
Period = $\frac{2\pi}{B} = \frac{2\pi}{\frac{1}{4}} = 2\pi \cdot 4 = 8\pi$



ex)
 $y = 3 \sin(4\pi x)$

A = 3
period = $\frac{2\pi}{B} = \frac{2\pi}{4\pi} = \frac{1}{2}$

