

2.5 Amplitude, Period and Frequency

1.

- a. $y = \sec x$: period = 2π , frequency = 1
- b. $y = \cot x$: period = π , frequency = 2
- c. $y = \csc x$: period = 2π , frequency = 1

Because these are reciprocal functions, the periods are the same as cosine, tangent, and sine, respectively.

2.

- a. min: -1, max: 1
- b. min: -2, max: 2
- c. min: -1, max: 1
- d. there is no minimum or maximum, tangent has a range of all real numbers
- e. min: $-\frac{1}{2}$, max: $\frac{1}{2}$
- f. min: -3, max: 3

3. d.

4.

- a. period: π , amplitude: 1, frequency: 2
- b. period: 2π , amplitude: 3, frequency: 1
- c. period: 2, amplitude: 2, frequency: π
- d. period: $\frac{2\pi}{3}$, amplitude: 2, frequency: 3
- e. period: 4π , amplitude: $\frac{1}{2}$, frequency: $\frac{1}{2}$
- f. period: 4π , amplitude: 3, frequency: $\frac{1}{2}$

5.

- a. period: π , amplitude: 3, frequency: 2, $y = 3 \cos 2x$
- b. period: 4π , amplitude: 2, frequency: $\frac{1}{2}$, $y = 2 \sin \frac{1}{2}x$
- c. period: 3, amplitude: 2, frequency: $\frac{2\pi}{3}$, $y = 2 \cos \frac{2\pi}{3}x$
- d. period: $\frac{\pi}{3}$, amplitude: $\frac{1}{2}$, frequency: 6, $y = \frac{1}{2} \sin 6x$

6.



