

Topic: Period and amplitude

Question: What are the amplitude and period of the function?

$$y = 6 \csc(-2.9\theta)$$

Answer choices:

- A The amplitude is -6 , and its period is 2.9π .
- B The amplitude is 6 , and its period is 5.8π .
- C The amplitude is undefined, and its period is $20\pi/29$.
- D The amplitude is undefined, and its period is $\pi/2.9$.



Solution: C

Since we're dealing with a cosecant function, we can't consider the amplitude.

Because b is positive and the period of $y = \csc \theta$ is 2π , the period of $y = -6 \csc(2.9\theta)$ is

$$\frac{2\pi}{|b|} = \frac{2\pi}{|2.9|} = \frac{20\pi}{29}$$



Topic: Period and amplitude**Question:** What are the amplitude and period of the function?

$$y = -5 \cos \frac{\theta}{7}$$

Answer choices:

- A The amplitude is 5, and the period is 14π .
- B The amplitude is -5 , and the period is $2\pi/7$.
- C The amplitude is 5, and the period is 2π .
- D The amplitude is -5 , and the period is 7π .



Solution: A

The function $y = -5 \cos(\theta/7)$ is in the form $y = a \cos(b\theta)$ where $a = -5$ and $b = 1/7$. Since $a = -5$, the amplitude of the function is

$$|a| = |-5| = 5$$

Since b is positive and the period of $\cos \theta$ is 2π , the period of $y = -5 \cos(\theta/7)$ is

$$\frac{2\pi}{|b|} = \frac{2\pi}{\left|\frac{1}{7}\right|} = 2\pi \left(\frac{7}{1}\right) = 14\pi$$



Topic: Period and amplitude**Question:** Which statement is false?**Answer choices:**

- A The period of $-\pi \sin(\pi^2\theta)$ is $2/\pi$.
- B The period of $\pi^3 \tan(4\theta/3)$ is $3\pi/4$.
- C The period of $(-1.7/\pi)\sec(\theta/3)$ is 6π .
- D The period of $2 \cot(4\pi\theta/3)$ is $3/2$.



Solution: D

The function in answer choice D,

$$y = 2 \cot \left(\frac{4\pi\theta}{3} \right)$$

is in the form $y = a \cot(b\theta)$ with $a = 2$ and $b = 4\pi/3$. Since b is positive and the period of $\cot \theta$ is π , the period of this function is

$$\frac{\pi}{|b|} = \frac{\pi}{\left| \frac{4\pi}{3} \right|} = \pi \left(\frac{3}{4\pi} \right) = \frac{3}{4} \neq \frac{3}{2}$$

