



## Exercícios: Função seno

Determine o período e a imagem e faça o gráfico de um período completo das funções abaixo:

1.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = -\text{sen } x$ .

2.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = 2 \cdot \text{sen } x$ .

3.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = \text{sen } 2x$ .

4.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = \text{sen} \frac{x}{2}$ .

5.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = 1 + \text{sen } x$ .

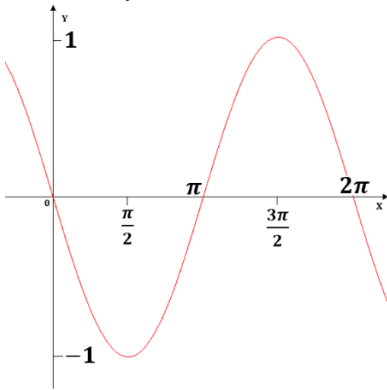
6.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = 3 \cdot \text{sen } 4x$ .

7.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = \text{sen} \left( x - \frac{\pi}{4} \right)$ .

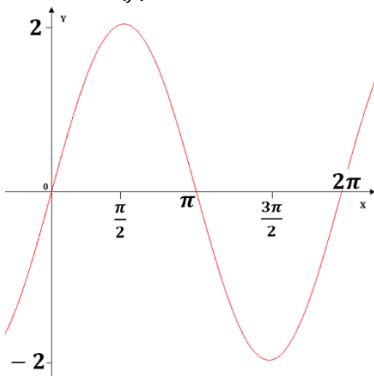
8.  $f: \mathbb{R} \rightarrow \mathbb{R}$  dada por  $f(x) = 1 + 3 \cdot \text{sen} \frac{x}{2}$ .

Gabarito:

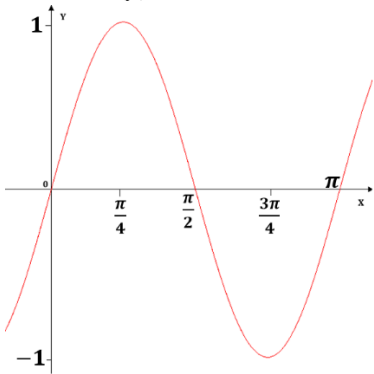
1.  $Im(f) = [-1, 1]$   
 $P(f) = 2\pi$



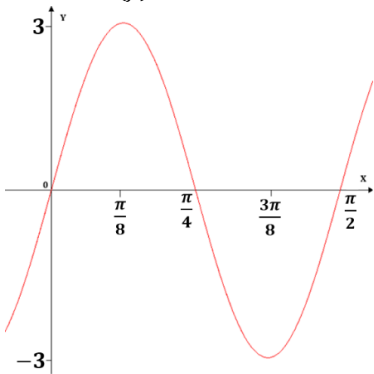
2.  $Im(f) = [-2, 2]$   
 $P(f) = 2\pi$



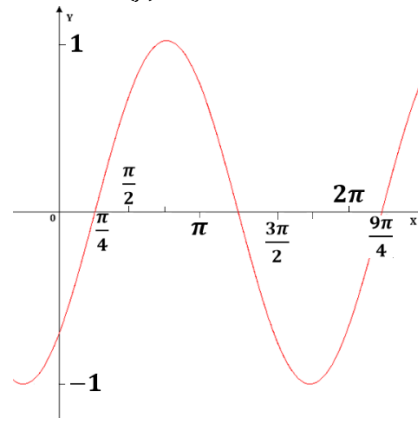
3.  $Im(f) = [-1, 1]$   
 $P(f) = \pi$



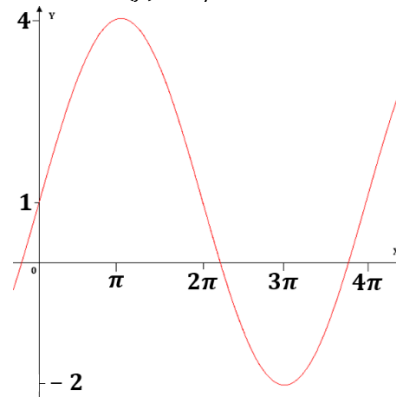
4.  $Im(f) = [-1, 1]$   
 $P(f) = 4\pi$



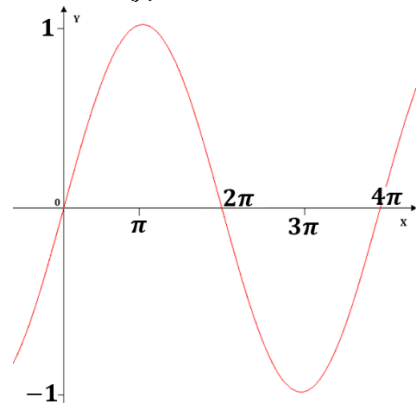
5.  $Im(f) = [0, 2]$   
 $P(f) = 2\pi$



6.  $Im(f) = [-3, 3]$   
 $P(f) = \pi/2$



7.  $Im(f) = [-1, 1]$   
 $P(f) = 2\pi$



8.  $Im(f) = [-2, 4]$   
 $P(f) = 4\pi$

