

Trigonometric Removable Discontinuity Limits

Evaluate each exact limit using standard trigonometric limits and identities.

1.

$$\lim_{x \rightarrow -2} -2 + \frac{1}{2} \cdot \frac{\sin(-3 \cdot (x+2))}{x+2}$$

Exact limit: _____

2.

$$\lim_{x \rightarrow -1} 2 + \frac{\sin(x+1)}{\sin(2 \cdot (x+1))}$$

Exact limit: _____

3.

$$\lim_{x \rightarrow 0} -1 - \frac{1 - \cos(-1 \cdot x)}{x^2}$$

Exact limit: _____

4.

$$\lim_{x \rightarrow 1} 1 - \frac{\cos(-2 \cdot (x-1)) - 1}{\sin(2 \cdot (x-1))^2}$$

Exact limit: _____

5.

$$\lim_{x \rightarrow 2} 1 + \frac{1}{2} \cdot \frac{\sin(-1 \cdot (x-2))}{3 \cdot (x-2)}$$

Exact limit: _____

6.

$$\lim_{x \rightarrow \frac{-1}{2} \cdot \pi} -2 - \frac{\sin\left(-2 \cdot \left(x + \frac{1}{2} \cdot \pi\right)\right)}{\sin\left(-3 \cdot \left(x + \frac{1}{2} \cdot \pi\right)\right)}$$

Exact limit: _____

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7.

$$\lim_{x \rightarrow \frac{1}{2} \cdot \pi} 1 + \frac{1}{2} \cdot \frac{1 - \cos\left(-1 \cdot \left(x - \frac{1}{2} \cdot \pi\right)\right)}{\left(x - \frac{1}{2} \cdot \pi\right)^2}$$

Exact limit: _____

8.

$$\lim_{x \rightarrow -2} 1 + \frac{1}{2} \cdot \frac{\cos\left(-2 \cdot (x + 2)\right) - 1}{\sin\left(3 \cdot (x + 2)\right)^2}$$

Exact limit: _____