

Limits

Advanced

Advanced Limits

1.
$$\lim_{x \rightarrow 0} \left((1 + 2x)^{\frac{3}{x}} \right)$$

2.
$$\lim_{x \rightarrow \infty} \left(6 + \frac{\sin(x)}{\sqrt{x}} \right)$$

3.
$$\lim_{x \rightarrow 0} \left(\frac{\sin(3x)}{x} \right)$$

4.
$$\lim_{x \rightarrow \infty} (x - \ln(x))$$

5.
$$\lim_{x \rightarrow \infty} \left(\frac{5^x}{3^x + 2^x} \right)$$

6.
$$\lim_{x \rightarrow \infty} \left(\frac{e^{3x} - e^{-3x}}{e^{3x} + e^{-3x}} \right)$$

7.
$$\lim_{x \rightarrow 0} \left(\frac{1}{1 + 2^{-\frac{1}{x}}} \right)$$

8.
$$\lim_{x \rightarrow \infty} (x^2 3^{-x})$$

9.
$$\lim_{x \rightarrow 0} \left(\frac{\sin(2x)}{3x} \right)$$

10.
$$\lim_{x \rightarrow 0} \left(\frac{x^2 \sin\left(\frac{1}{x}\right)}{\sin(x)} \right)$$

Answers

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1. e^6

2. 6

3. 3

4. ∞

5. ∞

6. 1

7. 1

8. 0

9. $\frac{2}{3}$

10. 0