

Evaluating Limits

Evaluate each limit.

1) $\lim_{x \rightarrow -1} 5$

2) $\lim_{x \rightarrow -\frac{5}{2}} (-x + 2)$

3) $\lim_{x \rightarrow 2} (x^3 - x^2 - 4)$

4) $\lim_{x \rightarrow 1} \left(-\frac{x^2}{2} + 2x + 4 \right)$

5) $\lim_{x \rightarrow 3} -\sqrt{x + 3}$

6) $\lim_{x \rightarrow \frac{3}{2}} -\sqrt{2x + 4}$

7) $\lim_{x \rightarrow 1} \frac{x - 4}{x^2 - 6x + 8}$

8) $\lim_{x \rightarrow \frac{3}{2}} \frac{-x - 3}{x^2 + x + 1}$

9) $\lim_{x \rightarrow \pi} \sin(x)$

10) $\lim_{x \rightarrow \frac{3\pi}{4}} 2\cos(x)$

Critical thinking questions:

11) Give an example of a limit that evaluates to 4.

12) Give an example of a limit of a quadratic function where the limit evaluates to 9.

Evaluating Limits

Evaluate each limit.

1) $\lim_{x \rightarrow -1} 5$

5

2) $\lim_{x \rightarrow -\frac{5}{2}} (-x + 2)$

 $\frac{9}{2}$

3) $\lim_{x \rightarrow 2} (x^3 - x^2 - 4)$

0

4) $\lim_{x \rightarrow 1} \left(-\frac{x^2}{2} + 2x + 4 \right)$

 $\frac{11}{2}$

5) $\lim_{x \rightarrow 3} -\sqrt{x+3}$

 $-\sqrt{6}$

6) $\lim_{x \rightarrow \frac{3}{2}} -\sqrt{2x+4}$

 $-\sqrt{7}$

7) $\lim_{x \rightarrow 1} \frac{x-4}{x^2-6x+8}$

1

8) $\lim_{x \rightarrow \frac{3}{2}} \frac{-x-3}{x^2+x+1}$

 $-\frac{18}{19}$

9) $\lim_{x \rightarrow \pi} \sin(x)$

0

10) $\lim_{x \rightarrow \frac{3\pi}{4}} 2\cos(x)$

 $-\sqrt{2}$

Critical thinking questions:

11) Give an example of a limit that evaluates to 4.

Many answers. Ex: $\lim_{x \rightarrow 4} x$

12) Give an example of a limit of a quadratic function where the limit evaluates to 9.

Many answers. Ex: $\lim_{x \rightarrow 3} x^2$