

Evaluate each limit algebraically.

1) $\lim_{x \rightarrow 3} \sqrt{2x+1}$

2) $\lim_{x \rightarrow 2} \sec \pi x$

3) $\lim_{x \rightarrow \pi} \tan \frac{3x}{4}$

4) $\lim_{x \rightarrow 5} \frac{x-5}{x^2-25}$

5) $\lim_{x \rightarrow 1} \frac{x^2-1}{1-x}$

6) $\lim_{x \rightarrow -5} \frac{x^2-25}{x^2+7x+10}$

7) $\lim_{x \rightarrow 0} \frac{3x^4-5x^2}{x^3-4x^2}$

8) $\lim_{h \rightarrow 0} \frac{(1+h)^3-1}{h}$

9) $\lim_{\Delta x \rightarrow 0} \frac{2(x+\Delta x)-2x}{\Delta x}$

10) $\lim_{x \rightarrow 0} \frac{\sqrt{x+5}-\sqrt{5}}{x}$

11) $\lim_{x \rightarrow 3} \frac{\sqrt{x+1}-2}{x-3}$

12) $\lim_{h \rightarrow 0} \frac{(x+h)^2-x^2}{h}$

$$13) \lim_{\theta \rightarrow 0} \frac{\sin \theta}{3\theta}$$

$$14) \lim_{\theta \rightarrow 0} \frac{\sin 5\theta}{\theta}$$

$$15) \lim_{\theta \rightarrow 0} \frac{\sin 5\theta}{3\theta}$$

16) Determine if each of the following is true or false.

a) $\lim_{x \rightarrow -1^+} f(x) = 1$

b) $\lim_{x \rightarrow 2} f(x)$ does not exist

c) $\lim_{x \rightarrow 2} f(x) = 2$

d) $\lim_{x \rightarrow 1^-} f(x) = 2$

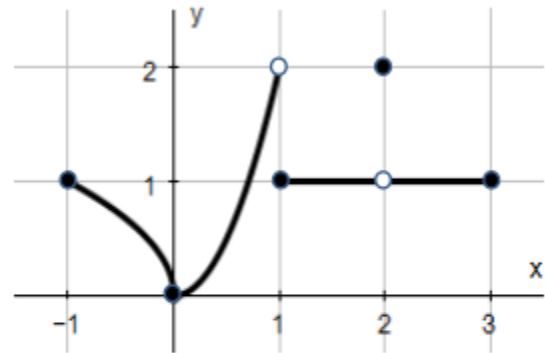
e) $\lim_{x \rightarrow 1^+} f(x) = 1$

f) $\lim_{x \rightarrow 1} f(x)$ does not exist

g) $\lim_{x \rightarrow 0^+} f(x) = \lim_{x \rightarrow 0^-} f(x)$

h) $\lim_{x \rightarrow c} f(x)$ exists at every c in $(-1, 1)$

i) $\lim_{x \rightarrow c} f(x)$ exists at every c in $(1, 3)$



17) Use the graph to the right to determine each of the following.

a) $\lim_{x \rightarrow 1^+} f(x)$

e) $\lim_{x \rightarrow 2^+} f(x)$

b) $\lim_{x \rightarrow 1^-} f(x)$

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

c) $\lim_{x \rightarrow 1} f(x)$

g) $\lim_{x \rightarrow 2} f(x)$

d) $f(1)$

h) $f(2)$

