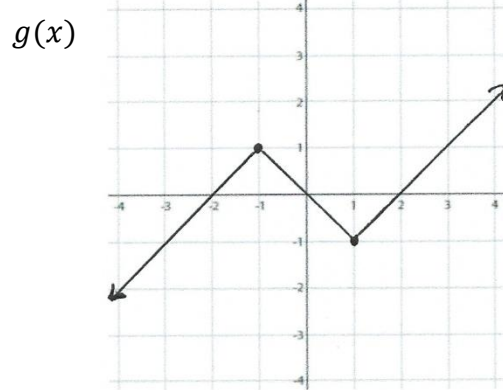
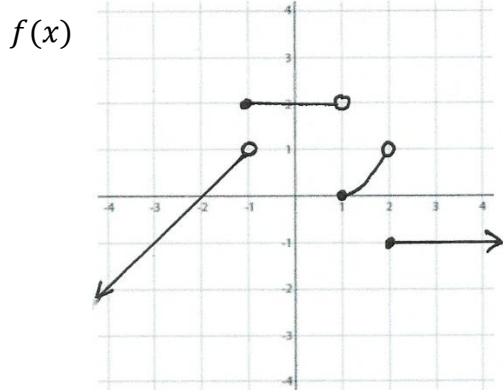


Unit 1 – Wkst 1 – Limits Review

Show all work. No calculator.

Given the graphs of functions  $f$  and  $g$ , evaluate each, if it exists. Write DNE if the limit does not exist.



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

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

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

4.  $f(2) =$

5.  $\lim_{x \rightarrow -1^-} f(x) =$

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

7.  $\lim_{x \rightarrow -1} f(x) =$

8.  $f(-1) =$

9.  $\lim_{x \rightarrow 1^-} g(x) =$

10.  $\lim_{x \rightarrow 1^+} g(x) =$

11.  $\lim_{x \rightarrow 1} g(x) =$

12.  $g(1) =$

13.  $\lim_{x \rightarrow \infty} f(x) =$

14.  $\lim_{x \rightarrow -\infty} f(x) =$

15.  $\lim_{x \rightarrow \infty} g(x) =$

16.  $\lim_{x \rightarrow -\infty} g(x) =$

17.  $\lim_{x \rightarrow -1} [f(x) + g(x)] =$

18.  $\lim_{x \rightarrow 0} [2f(x) + 3g(x)] =$

19.  $\lim_{x \rightarrow -1} [f(x)g(x)] =$

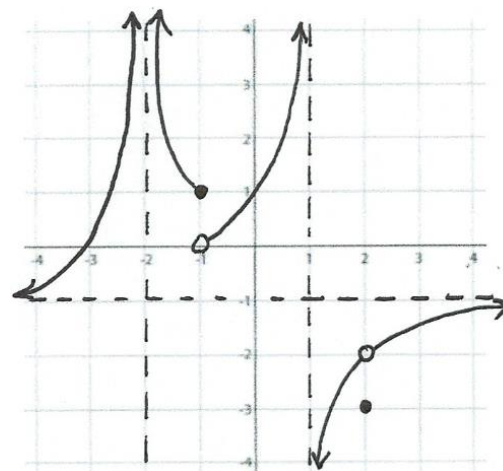
20.  $\lim_{x \rightarrow 0} \frac{f(x)}{g(x)} =$

Use the figure at the right to evaluate each limit, if it exists.

21.  $\lim_{x \rightarrow 1^+} f(x) =$       22.  $\lim_{x \rightarrow 1^-} f(x) =$       23.  $\lim_{x \rightarrow 1} f(x) =$

24.  $\lim_{x \rightarrow 2^-} f(x) =$       25.  $\lim_{x \rightarrow 2^+} f(x) =$       26.  $\lim_{x \rightarrow 2} f(x) =$

27.  $f(2) =$       28.  $\lim_{x \rightarrow -1^+} f(x) =$       29.  $\lim_{x \rightarrow \infty} f(x) =$       30.  $\lim_{x \rightarrow -\infty} f(x) =$



Graph of  $f(x)$

Find each limit, if it exists. If the limit does not exist write DNE.

31.  $\lim_{t \rightarrow 4} \frac{t^2 - 4}{t - 4} =$

32.  $\lim_{x \rightarrow \frac{5\pi}{3}} \frac{\tan x}{\cos x} =$

33.  $\lim_{x \rightarrow -3} \frac{x^4 - 81}{3x + 9} =$

34.  $\lim_{x \rightarrow 3} \frac{x - 3}{x^3 - 27} =$

35.  $\lim_{x \rightarrow 0} \frac{\sqrt{x+2} - \sqrt{2}}{x} =$

36.  $\lim_{x \rightarrow 0} \frac{\frac{1}{x+1} - 1}{x} =$

37.  $\lim_{x \rightarrow 0} \frac{1 - \cos x}{\sin x} =$

38.  $\lim_{x \rightarrow \pi} \frac{1 + \cos x}{\sin x} =$

39.  $\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \cos x}{\sin x} =$

$$40. \lim_{x \rightarrow 2} \frac{\sqrt{11-x}-3}{x-2} =$$

$$41. \lim_{x \rightarrow 0} \frac{\frac{2}{x+1} - \frac{4}{2-x}}{x} =$$

$$42. \lim_{x \rightarrow -3} \frac{\frac{1}{x+4} - 1}{x+3} =$$

$$43. \lim_{x \rightarrow \infty} \frac{9x+2-4x^3}{5+x^2+7x^4} =$$

$$44. \lim_{x \rightarrow \infty} \frac{3x^2-4x^3}{5x^3+2x} =$$

$$45. \lim_{x \rightarrow \infty} \frac{3x^5-4x^3}{7x^3-9x} =$$

$$46. \lim_{x \rightarrow 3^-} \frac{1}{x-3} =$$

$$47. \lim_{x \rightarrow 3^+} \frac{1}{x-3} =$$

$$48. \lim_{x \rightarrow 3} \frac{1}{x-3} =$$

$$49. \lim_{x \rightarrow \infty} \arctan x =$$

$$50. \lim_{x \rightarrow -\infty} \arctan x =$$

$$51. \lim_{x \rightarrow \infty} \frac{\sin x}{x} =$$

$$52. \lim_{x \rightarrow \infty} \cos\left(\frac{1}{x}\right) =$$

$$53. \lim_{x \rightarrow 0} \cos\left(\frac{1}{x}\right) =$$

$$54. \lim_{x \rightarrow 0^+} \frac{10\cos x}{\sin x} =$$