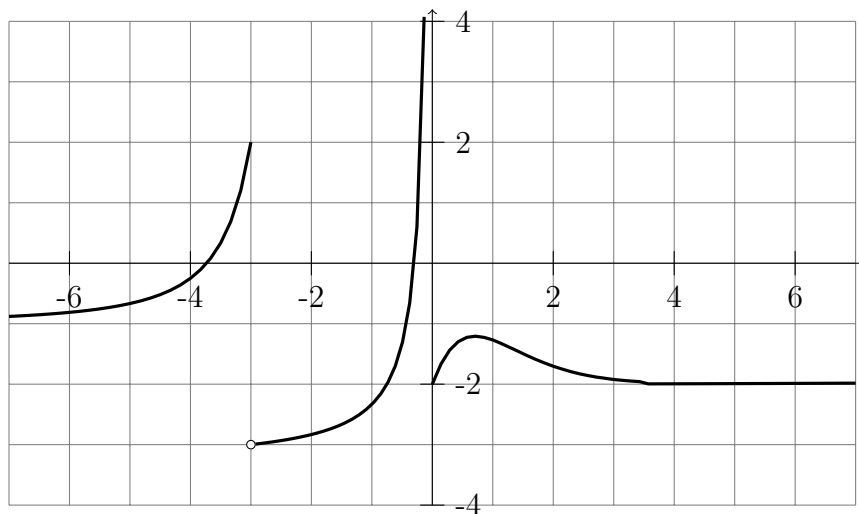


MA111 - Homework Sec. 2.6

You may work together but do not copy other peoples' work and present it as your own.

1 For the function whose graph is given, determine the following limits



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

b. $\lim_{x \rightarrow -3^+} f(x)$

c. $\lim_{x \rightarrow -3^-} f(x)$

d. $\lim_{x \rightarrow -3} f(x)$

e. $\lim_{x \rightarrow 0^+} f(x)$

f. $\lim_{x \rightarrow 0^-} f(x)$

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

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

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

Find the limits

2 a. $\lim_{x \rightarrow \infty} \frac{3}{x} - 5$

b. $\lim_{x \rightarrow -\infty} \frac{3}{x} - 5$

3 a. $\lim_{x \rightarrow \infty} \frac{-3 + (7/x)}{5 - (1/x^2)}$

b. $\lim_{x \rightarrow -\infty} \frac{-3 + (7/x)}{5 - (1/x^2)}$

4 $\lim_{x \rightarrow \infty} \frac{\sin(5x)}{x}$

5 a. $\lim_{x \rightarrow \infty} \frac{2x^3 + 9}{x^3 - x^2 + x + 9}$

b. $\lim_{x \rightarrow -\infty} \frac{2x^3 + 9}{x^3 - x^2 + x + 9}$

6 a. $\lim_{x \rightarrow \infty} \frac{x + 4}{x^2 - 3}$

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

7 a. $\lim_{x \rightarrow \infty} \frac{5x^8 - 2x^3 + 9}{3 + x - 6x^5}$

b. $\lim_{x \rightarrow -\infty} \frac{5x^8 - 2x^3 + 9}{3 + x - 6x^5}$

8 $\lim_{x \rightarrow -\infty} \frac{\sqrt[5]{x} - \sqrt[3]{x}}{\sqrt[5]{x} + \sqrt[3]{x}}$

9 $\lim_{x \rightarrow \infty} \frac{\sqrt{2x^2 + 1}}{x + 3}$

10 $\lim_{x \rightarrow -7^+} \frac{2x}{x + 7}$

11 $\lim_{x \rightarrow 9} \frac{4}{(x - 9)^2}$

12 $\lim_{x \rightarrow 0} \frac{3}{x^2(x + 2)}$

13 $\lim_{x \rightarrow \pi^-} \cot(x)$

14 Find $\lim_{x \rightarrow 9} \frac{1}{x^2 - 9}$ as

a. $x \rightarrow 3^-$ b. $x \rightarrow 3^+$ c. $x \rightarrow -3^-$ d. $x \rightarrow -3^+$

15 $\lim_{x \rightarrow \infty} (\sqrt{x^2 + 49} - \sqrt{x^2 - 1})$

Answers and suggestions

1 a. about -1.7 b. -3 c. 2 d. Does Not Exist
e. -2 f. $+\infty$ g. Does not exist h. -2 i. -1

3 a. $-3/5$ b. $-3/5$

5 a. 2 b. 2

7 a. ∞ b. $-\infty$

9 $\sqrt{2}$

11 ∞

13 ∞

15 0