

MAC2311 Finding Limits Graphically  
Practice

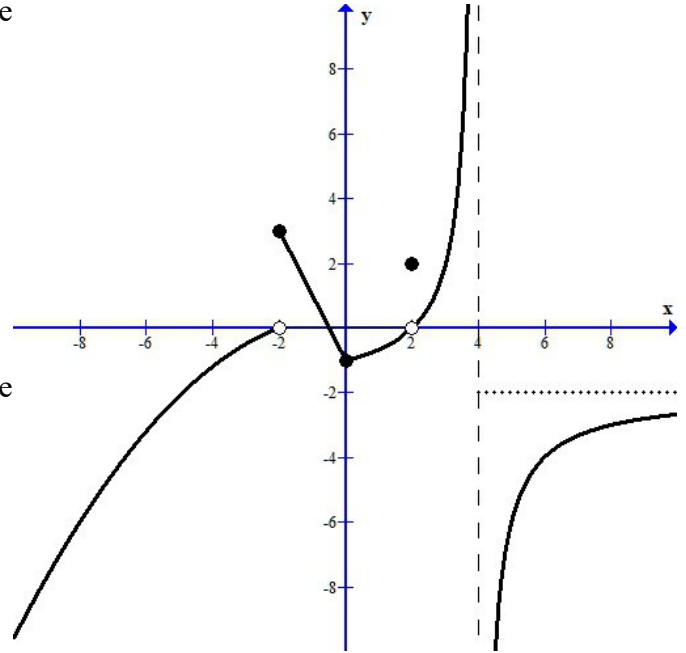
1. Evaluate the following limits and function value using the graph.

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

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

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

d.  $f(0)$



2. Evaluate the following limits and function value using the graph.

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

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

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

d.  $f(-2)$

3. Evaluate the following limits and function value using the graph.

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

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

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

d.  $f(2)$

4. Evaluate the following limits and function value using the graph.

a.  $\lim_{x \rightarrow 4^-} f(x)$

b.  $\lim_{x \rightarrow 4^+} f(x)$

c.  $\lim_{x \rightarrow 4} f(x)$

d.  $f(4)$

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

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

5. Use the graph and information in questions 1-4 to discuss the continuity of the function. State the interval where the function is continuous and state any discontinuities and whether the discontinuities are removable or non-removable.

- 1a. -1 1b. -1 1c. -1 1d. -1 2a. 0 2b. 3 2c. DNE 2d. 3 3a. 0 3b. 0 3c. DNE 3d. 2 4a.  $\infty$  4b.  $-\infty$   
4c. DNE 4d. Undefined 4e.  $-\infty$  4f. -2 5. Continuous on  $(-\infty, -2) \cup (-2, 2) \cup (2, 4) \cup (4, \infty)$ ; Removable discontinuity at  $x=2$  and non-removable discontinuities at  $x=-2$  and  $x=4$