

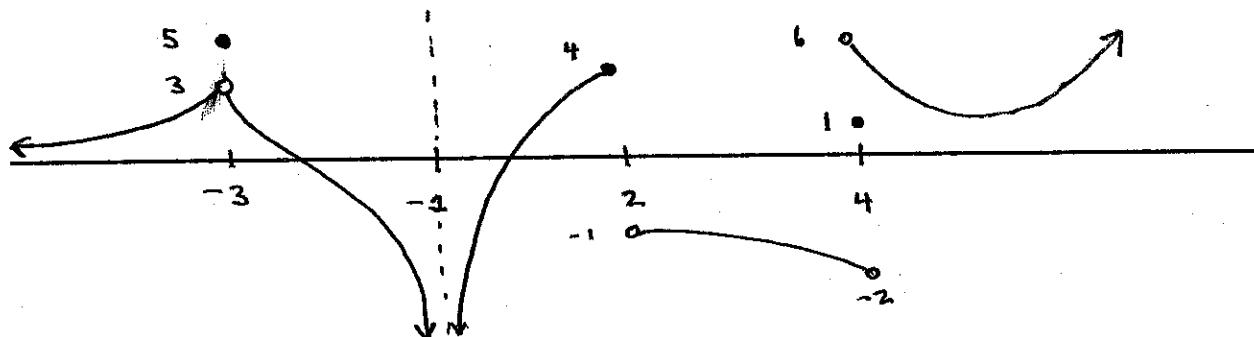
Name: _____

Quiz 3, sections 2.2, 2.3

1. (3 pts) Evaluate the limits listed using the graph. If a limit does not exist, write 'DNE'.

a) $\lim_{x \rightarrow -3} f(x) = \underline{3}$ b) $\lim_{x \rightarrow -1} f(x) = \underline{-\infty}$

c) $\lim_{x \rightarrow 2} f(x) = \underline{\text{DNE}}$ d) $\lim_{x \rightarrow 4} f(x) = \underline{\text{DNE}}$



$$\begin{aligned}
 2. \text{ (4 pts) Evaluate } L &= \lim_{x \rightarrow 7} \frac{x^2 - 5x - 14}{x^2 - 8x + 7} = \lim_{x \rightarrow 7} \frac{(x-7)(x+2)}{(x-7)(x-1)} \\
 &= \lim_{x \rightarrow 7} \frac{x+2}{x-1} \\
 &= \frac{9}{6} = \frac{3}{2}
 \end{aligned}$$

$$\begin{aligned}
 3. \text{ (4 pts) Evaluate } L &= \lim_{x \rightarrow 0} \frac{\sqrt{4+x} - 2}{x} \cdot \frac{\sqrt{4+x} + 2}{\sqrt{4+x} + 2} \\
 &= \lim_{x \rightarrow 0} \frac{(4+x) - (4)}{x(\sqrt{4+x} + 2)} \\
 &= \lim_{x \rightarrow 0} \frac{x}{x(\sqrt{4+x} + 2)} \\
 &= \lim_{x \rightarrow 0} \frac{1}{\sqrt{4+x} + 2} = \frac{1}{\sqrt{4} + 2} = \frac{1}{4}
 \end{aligned}$$