

$$47) \lim_{x \rightarrow 0} \frac{|x|}{x}$$

48)  $\lim_{x \rightarrow \infty} \frac{3 \sin(x)}{x}$

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$$49) \lim_{x \rightarrow \infty} \frac{3x^2 - 9}{(3+x)(3-x)}$$

$$50) \text{ Determine if the function is continuous, } g(x) = \begin{cases} x^2 - 4, & x \neq 2 \\ -4, & x = 2 \end{cases}$$

$$51) \text{ Determine } \lim_{x \rightarrow 3} h(x) / h(x) = \begin{cases} -x + 1, & x > 3 \\ x - 5, & x < 3 \end{cases}$$

$$52) \lim_{x \rightarrow 2} \frac{x^2 + x - 6}{|x - 2|}$$

53) Draw a function that has infinite discontinuities at  $x = -1$  and  $x = 4$ .

$$54) \lim_{h \rightarrow 0} \frac{\frac{1}{x+h} - \frac{1}{x}}{h}$$

55) Draw a function that has a jump discontinuity at  $x = 3$ .

56) Draw a function that is continuous everywhere but at  $x = 2$  (where the limit does not exist).

57) Draw a function that has a point discontinuity at  $x = -1$ .