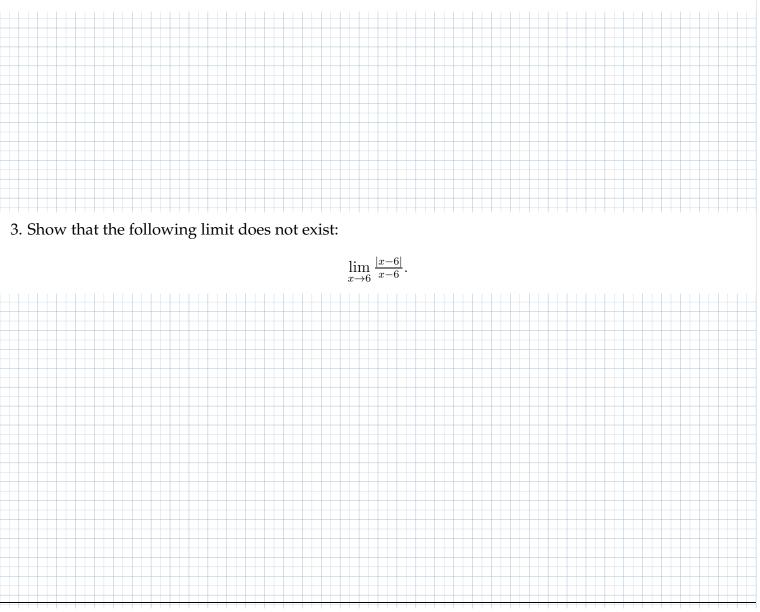
1. Take f to be the function given by

$$f(x) = \begin{cases} \frac{x^2 - 3x - 10}{x - 5} & \text{if } x \neq 5\\ 12 & \text{if } x = 5. \end{cases}$$

Determine $\lim_{x\to 5} f(x)$ and whether the limit depends on f(5).

2. Take *f* to be a function with the property that $\lim_{x\to 2} f(x) = 7$. Determine $\lim_{x\to 2^-} f(x)$ and $\lim_{x\to 2^+} f(x)$.



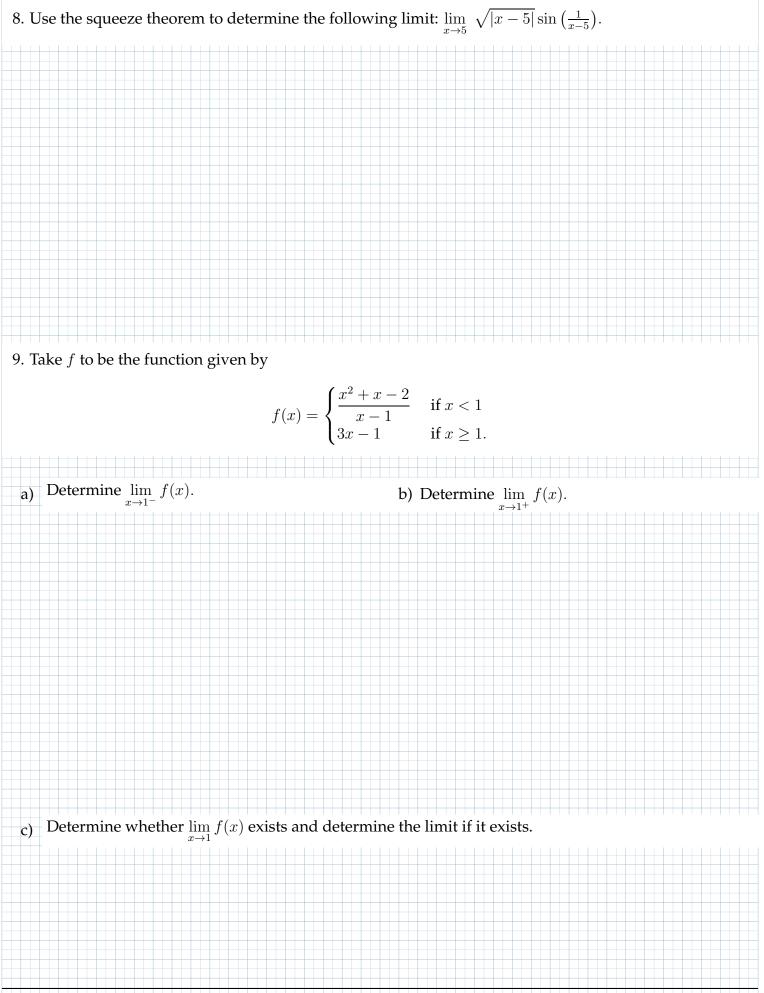


6. Take *a*, *b*, *c*, and *d* to be functions that are defined in an open interval that contains 2 and

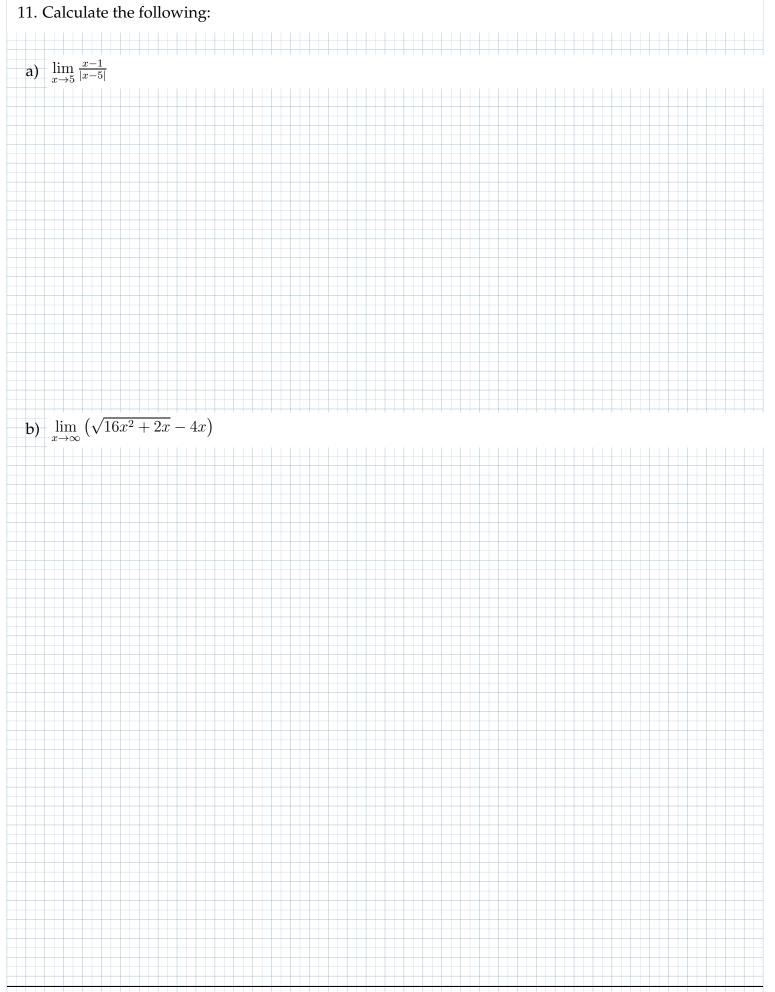
 $\lim_{x \to 2} a(x) = 6, \quad \lim_{x \to 2} b(x) = -1, \quad \lim_{x \to 2} c(x) = 4, \text{and} \quad \lim_{x \to 2} d(x) = 2.$

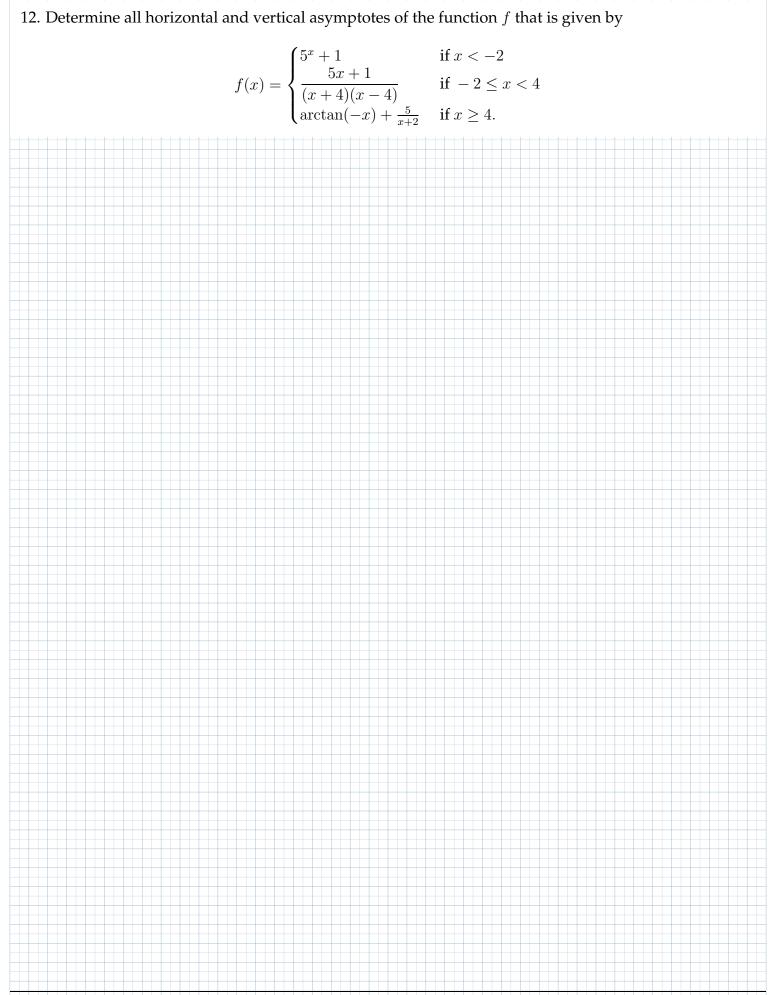
Use the limit laws to determine the following limits:











13. Take f to be the rational function that is given by

$$f(x) = \frac{x^4(x+4)^6(x-1)^2(x-5)^2}{(1-4x)^3(x+3)^8}.$$

Find a monomial *g* so that *f* and *g* have the same asymptotic behavior at both ∞ and $-\infty$.

14. Identify a path that describes the position in time of a particle that moves along the line segment L with endpoints (2, 4) and (5, 1), has domain equal to \mathbb{R} , is at the midpoint of L at time 0, moves only to the left, and reaches all points of L except the endpoints of L.

