

Answer Key 1

Part 1

Stewart Page 92: 4, 7, 9, 29, 30, 31, 32, 41

<p>4. a) 3 b) 1 c) DNE the left and right hand limits are different d) 3 e) 4 f) DNE the function is not defined at 4, or 4 is not in the domain of f</p>	<p>7. a) $a=4$ b) $a=5$ c) $a=2$ or $a=4$ d) $a=4$</p>
<p>9. a) $-\infty$ b) ∞ c) ∞ d) $-\infty$ e) ∞ No need to do f) but if you did f) $x=-7, x=-3, x=0, x=-6$</p>	<p>29. ∞ 30. $-\infty$ 31. ∞ 32. $-\infty$ 41. $x=-2$</p>

Part 2

Determine if the indicated limit exists. Evaluate the limits which do exist.

1. $\lim_{x \rightarrow 1} 2x$	6. $\lim_{x \rightarrow 0} f(x)$ if $f(x) = \begin{cases} x, & x \text{ rational} \\ -x, & x \text{ irrational} \end{cases}$
2. $\lim_{x \rightarrow 0} (3x - 5)$	7. $\lim_{x \rightarrow 2} \frac{ x-2 }{ x-2 }$
3. $\lim_{x \rightarrow 2} (x^2 - 1)$	8. $\lim_{x \rightarrow 2} \frac{(x-2)^2}{(x-2)}$
4. $\lim_{x \rightarrow 3} x - 2 $	9. $\lim_{x \rightarrow 2} \frac{1-x^2}{1-x}$
5. $\lim_{x \rightarrow 0} f(x)$ if $f(x) = \begin{cases} -5, & x = 0 \\ 2x, & x \neq 0 \end{cases}$	10. $\lim_{x \rightarrow 2} \frac{1+x^2}{1-x}$

1. 2	6. 0 (Note: this is a very hard problem, I don't care if you got it right or not)
2. -5	
3. 3	7. 1
4. 1	8. 0
5. 0	9. 3
	10. -5