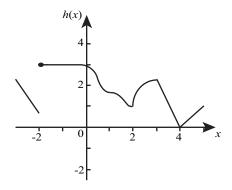
Limits of Functions Worksheet - Answer Key



- 1. From the graph above find $\lim_{x\to 2} h(x)$.
- 2. From the graph above find $\lim_{x\to -2} h(x)$. The limit does not exist.
- 3. From the graph above find $\lim_{x\to 4} h(x)$.
- 4. From the graph above find $\lim_{x\to -2^+} h(x)$.
- 5. From the graph above find $\lim_{x\to 0^-} h(x)$.
- 6. From the table above estimate $\lim_{\substack{x \to -2^+ \ 3.14}} h(x)$.

x	g(x)
-2	4
-1.5	3.5
-1.009	3.14321
-1.00001	3.14122
-0.9994	3.14035
0	2

- 7. Find $\lim_{x \to \frac{\pi}{2}} \frac{x \sin(2x)}{\cos(x)}.$ $\lim_{x \to \frac{\pi}{2}} \frac{2x \sin(x) \cos(x)}{\cos(x)} = \pi$
- 8. Find $\lim_{x \to 0} \frac{\ln(3^x)}{x} 5x$. $\lim_{x \to 0} \frac{x \ln(3)}{x} - 5x = \ln 3$
- 9. Find $\lim_{y \to 1} \frac{y^3 1}{y 1}$. $\lim_{y \to 1} \frac{(y - 1)(y^2 + y + 1)}{y - 1} = 3$
- 10. For $f(x) = \begin{cases} x-2 & \text{if } x < -1; \\ ax^2 3 & \text{if } x \ge -1. \end{cases}$, find the value of a such that $\lim_{x \to -1} f(x)$ exists.

$$a - 3 = -3 \implies a = 0$$

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