

Things You Should Know/Be Able to Do

Here's a list of topics with suggested practice problems from the free textbooks OpenStax and Apex Calculus, both of which you can find by searching the internet for their names.

Note: Many of the OpenStax exercises have a paragraph above the first one telling you more details about the problem, so if you're not sure what the question is asking, look above it to see if there's a paragraph starting with "In the following exercises...."

- Find limits (one-sided and two-sided)
 - Create and use a table to estimate the limit of a function numerically (e.g., OpenStax Calculus Section 2.2 Exercises 30–45)
 - Use the graph of a function to find specified limits (e.g., Apex Calculus Section 1.4 Exercises 5–12, OpenStax Calculus Section 2.2 Exercises 46–75)
 - Use limit laws to find limits (e.g., Apex Calculus Section 1.3 Exercises 6–17; OpenStax Calculus Section 2.3 Exercises 83–86, 107–114)
 - Use algebraic techniques as needed to find limits (e.g., Apex Calculus Section 1.3 Exercises 27–32; OpenStax Calculus Section 2.3 Exercises 93–102)
 - Find the limit of a function as $x \rightarrow \pm\infty$ and give the equation(s) for a function's horizontal and vertical asymptote(s) (e.g., Apex Calculus Section 1.6 Exercises 19–24 (just the horizontal asymptotes), 25–28; OpenStax Calculus Section 4.6 Exercises 261–270, 271–274)
- Draw a graph of a function with given properties (e.g., Apex Calculus Section 1.5 Exercise 43; OpenStax Calculus Section 2.2 Exercises 76–80, Section 2.4 Exercises 157–160, Section 4.6 Exercises 285–288)
- Determine where a function fails to be continuous and why (e.g., from a graph determining which of the three conditions for continuity from the definition are not met and why; Apex Calculus Section 1.5 Exercises 11–17, 19–21; OpenStax Calculus Section 2.4 Exercises 133, 136, 154).
- Find the value of a constant that will make a function continuous (e.g., OpenStax Calculus Section 2.4 Exercises 145, 147, 149)
- State and use the Intermediate Value Theorem (e.g., Apex Calculus Section 1.5 Exercises 33–36; OpenStax Calculus Section 2.4 Exercises 150, 151, 152ab, 153)