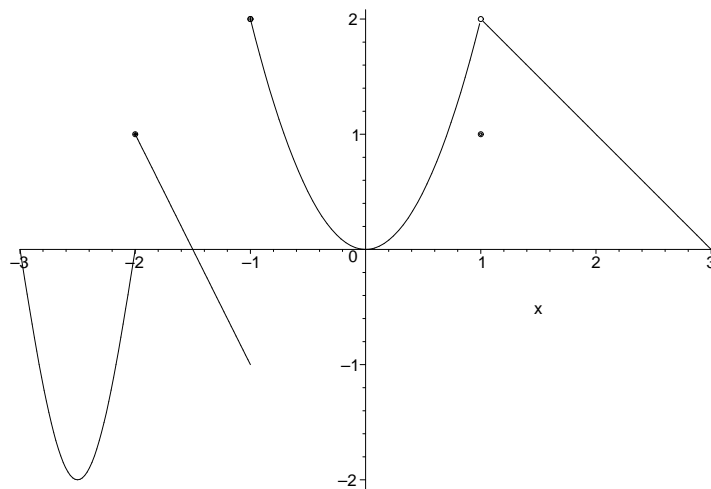


Use the graph below to answer the following questions:



1. List any points at which $f(x)$ is not continuous.
2. Are any of the discontinuities removable? If so, how could you define the function to make it continuous there?

3. Find a and b so that $f(x) = \begin{cases} \frac{\sin(2x)}{x}, & x < 0 \\ a, & x = 0 \\ be^x + 3, & x > 0 \end{cases}$ is continuous.

4. Use the log laws to simplify $\log_3 \left(\frac{x^2 y^{3/4}}{z^2 + 1} \right)$.

5. Find $\log_2\left(\frac{1}{4}\right)$ without using your calculator.

6. Find $\log_3\left(\frac{1}{9}\right) + \log_3(27)$ without using your calculator.

7. Solve $\ln(x + 3) + \ln(x - 1) = \ln(12)$.

8. Expand $\ln\left(\frac{y^3(x + 3)^2}{x^4 + 5}\right)$.

9. Find $\lim_{h \rightarrow 0} \frac{(x + h)^2 - x^2}{h}$.