• No calculators allowed.
• Show sufficient work to justify each answer.
• You have 15 minutes for this quiz.

1. (2 points each) Graph the following functions by hand, not by plotting points.

(a) \( f(x) = 2e^{-(x+2)} + 1 \)

(b) \( g(x) = 3(x + 1)^2 \)

2. (2 points) Find the values of \( x \) in the interval \([0, 2\pi]\) that satisfy.

\[
2 \cos x = -1 \\
\cos \chi = -\frac{1}{2} \\
\chi = \frac{2\pi}{3}, \quad \chi = 4\frac{\pi}{3}
\]
3. (2 points each) Find the domain of the functions.

(a) \[ f(x) = \frac{1}{\sqrt{x^2 - 9}} \]

\[ \sqrt{x^2 - 9} \neq 0 \quad \Rightarrow \quad x \neq 3, -3 \]

\[ x^2 - 9 > 0 \]

\[ (x - 3)(x + 3) > 0 \]

\[
\begin{array}{cccccccc}
(x+3) & \cdots & + & + & + & + & + & + \\
& -3 & 0 & 3 & \\
(x-3) & \cdots & - & - & - & + & + & + \\
& -3 & 0 & 3 & \\
\end{array}
\]

\[ (-\infty, -3) \cup (3, \infty) \]

(b) \[ f(x) = e^{3x^2 - 1} \]

all of \( \mathbb{R} \)