Instructions. Please work on the following problems in groups, while the TAs circulate. While you will not need to submit your answers, make sure to show your progress to the TAs on every problem.

1) Find the domain of each of the following functions:
   (a) \( f(x) = 2^{x-3} \)
   (b) \( g(x) = \frac{1}{2^x - 8} \)
   (c) \( h(x) = \sqrt{e^x} \)
   (d) \( j(x) = \frac{1}{\sin x} \)
   (e) \( r(x) = \tan(x) \)
   (f) \( s(x) = \sqrt{2x - 1} + \frac{1}{x - 4} \)

2) Evaluate
   \( \cos \left( \frac{21\pi}{2} \right), \ \sin \left( \frac{21\pi}{2} \right), \ \cos \left( \frac{-23\pi}{4} \right), \ \sin \left( \frac{-23\pi}{4} \right), \ \tan \left( \frac{13\pi}{6} \right), \ \sec \left( \frac{11\pi}{3} \right) \)

3) Use the exponent rules to simplify the following expressions.
   (a) \( \sqrt{5} \cdot \sqrt{5} \)
   (b) \( \frac{2^3 \cdot \sqrt{2}}{2^4} \)
   (c) \( e^x \cdot e^{2x} \cdot e^{3x} \)

4) Let \( f(x) = \frac{2x + 1}{x + 2} \) and \( g(x) = \frac{x - 1}{3x + 2} \). Find \( f(g(x)) \). Simplify your answer as much as possible. The final answer should be expressed as a single fraction.