Quiz 10 **Name:** _____
Total Points possible: 21 out of 20
Math 12: Spring 2025

Instructions: Show all your work in order to receive credit. Each problem is worth 2 points. The extra credit is worth 1.

Problem 1. Simplify completely.

(a) $\left(81x^6\right)^{\frac{3}{4}}$

(b) $\sqrt[6]{(125c^6)^3}$

Problem 2. Solve for x for $f(x) = \sqrt{x^2 - 4x - 12} - 1 = 2$

Problem 3. Factory completely, using the quadratic formula. Note that, lambda, denoted as λ is just an other variable like x. However, λ is commonly seen in linear algebra.

$$2\lambda^2 = \lambda - 5$$

Problem 4. Simplify completely,

(a) $(3i^2 - i + 4)(-2i + i^2)$

(b) $(-i^2 - 5i)^2$

Problem 5. Rationalize the denominator, aka divide.

$$\frac{-i+2}{-i-2}$$

Problem 6. Simplify completely.

$$\sqrt[3]{\frac{81x^7c^9}{3(z^0+2x)^3}}$$

Problem 7. This will not be on the exam, expand then solve for $\frac{1}{4}$.

$$(f+g)^2-(f-g)^2$$

Problem 8. This will not be on the exam. Let x be any positive number bigger than 0. Which fraction is bigger and why?

$$\frac{1}{x+1} \quad \text{or} \quad \frac{1}{x}$$

Problem 9. (1 points) **Extra credit**. What is your favorite K.K. Slider song?