

Math 1090 Section 5 Challenge 3

1. Find all solutions to the absolute value equation $|x - 2| - |x + 7| = 5x - 2$
2. Find the domain of the equation

$$T(x) = \frac{\sqrt[543]{3x+1}(-x^{-1}+2x+1)}{(x^2-2x-1)\sqrt[100]{x-5}\sqrt{3x+9}}$$

3. Find a function such that $h \circ g(x) = x$ for all x except $x = -1$ and $x = 3$ where
$$g(x) = \frac{x-3}{x^3-x^2-5x+3} - 10$$
4. Find all the solutions to the absolute value equation $||z - 3| - 5| + 2| = 10$
5. Find all solutions to the absolute value equation

$$\left| \frac{x^4 - 12x^2 - 13x - 12}{x^2 + x + 1} \right| = 2x^2 + 10x + 12$$