

Problem 1

Find the inverse of each function and state its domain

1. $f(x) = 1 + \sqrt{2 + 3x}$

2. $g(x) = x^2 - x, x \geq \frac{1}{2}$

3. $h(x) = \log(x + 3)$

Problem 2

Sketch the function $f(x) = |x^2 - 2x|$.

Problem 3

Find an expression for x in each of the following. (Hint: some of them may not have solutions)

1. $2^{x+2} = \frac{1}{4}$

2. $\frac{1}{2}^{2-x} = \frac{1}{16}$

3. $3^{x^2} = \frac{1}{27}$

Problem 4

Find the domain of $\log(2x^2 - 4x + 2)$. Sketch this function. (Hint: Sketch $\log(x^2)$ first. How can you transform $\log(x^2)$ to the function given?)