

July 3, 2003

Show all work for credit.

Leave all answers as exact answers unless otherwise stated.

1. Let $f(x) = \frac{1}{\sqrt{5-x}}$. What is the natural domain?

2. Define $\langle a, b \rangle \otimes \langle c, d \rangle = 4ac + b^2d$

(a) Evaluate $\langle 5, -2 \rangle \otimes \langle 6, -3 \rangle$

(b) Solve for x : $\langle 4, 1 \rangle \otimes \langle 3, x \rangle = -5$

3. For each of the following, choose the BEST method for solving the equation. Choose Guess and Check ONLY if no other method will work.

(a) $(x+2)(x-3) + 3(x-3) = 5$

(b) $\ln(5x-5) + 2 = 17$

(c) $(x+1)(x+5)^2 - 3(x-1)(x+7)^2 = 0$

(d) $(x+1)(x+5)^2 + x + 1 = 0$