

171 EXAM I OCTOBER 8, 2003

NAME: _____

T.A.: _____

INSTRUCTIONS: Show all your work. Answers alone will receive little or no credit. Be neat. We do not want to be required to guess at what you're doing. We must be able to see how you got to your answer. **Take your time and be careful with your calculations. A mistake early in your work could be costly.**

1. _____

2. _____

3. _____

4. _____

5. _____

TOTAL _____

1. (20 p'ts.) Solve for x .

$$\frac{3-x}{3+x} \geq 1.$$

Ans. _____

2. (20 p'ts.) Find the slope - intercept form of an equation for the perpendicular bisector of the line segment connecting the points $(1, 4)$ and $(5, -4)$.

Ans. _____

3. (20 p'ts.) Let $f(x) = \sqrt{3-x}$ be the function with domain $(-\infty, 3]$. Find the inverse function, $g(x)$ of $f(x)$. What is the domain of $g(x)$?

Ans. $g(x) =$ _____

$Dom(g(x)) =$ _____

4. (20 p'ts.) Find the limit

$$\lim_{x \rightarrow (-2)^-} \frac{1}{[x]}$$

or show that the limit does not exist. $\{[x]$ is the greatest integer function. }

Ans. _____

5. (20 p'ts.) Find all the asymptotes to

$$f(x) = \frac{3x^3 - 11x}{x^3 - 4x}$$

Ans. Vertical asymptotes are: _____

Horizontal asymptotes are: _____