

MATH 164 Pre-Test

Name: _____ SID: _____

Instructions

Unless space is provided, work all problems out on the provided scratch paper, using one side only. Be sure to number each problem and page and staple them (in order) to the end of this exam. If space was provided on a problem but your work is on scratch paper, state this. Be sure that all your work is visible after stapling. In order to receive full credit, you must:

- Fully justify each answer.
- Organize your work so that your line of reasoning is clear.
- Write neatly and legibly.
- Circle/box your final answer where appropriate.
- For questions that use units (e.g., degrees, feet, etc.), your answer must specify the appropriate unit.

Read each question carefully. Unless otherwise specified, calculators are not allowed. Diagrams are not drawn to scale.

Problems

1. Evaluate and simplify if possible.

(a) $\frac{200}{36} \cdot \frac{30}{500}$

(b) $\frac{1}{3} + \frac{3}{7} - \frac{7}{5}$

(c) $\frac{a^5 + a^3b^2 + 1}{5a + 3b}$

(d) $\frac{a^5b^3 + b^2}{b^5}$

(e) $\frac{1}{x} - \frac{1}{x+1}$

2. Multiply and simplify.

(a) $(a+b)(a-b)$

(b) $(3x-2)(7x+5)$

(c) $(x^2+x+1)(x-1)$

3. Factor if possible.

(a) $x^2 - 25$

(b) $x^2 + 2x + 1$

(c) $x^2 - 5x + 6$

(d) $x^2 + x - 2$

(e) $x^2 + xy - 2y^2$

4. Solve each equation for x . If there is more than one solution, list all of them. If there is no solution, state this. Assume all values are real.

(a) $3x + 2 = 1$

(b) $9x^2 - 1 = 0$

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

(d) $\frac{x-5}{x+4} = 0$

(e) $\frac{3}{x} = x^2$