

Math 150                    **NEATLY PRINT NAME:** \_\_\_\_\_

Exam 1    **STUDENT ID:** \_\_\_\_\_

Fall 2009                                        **DATE:** \_\_\_\_\_

**SECTION:** Circle your correct section number.

Tuesday recitations:    501    503    505    507    509    511    525    527    529

Thursday recitations:   502    504    506    508    510    512    526    528    530

TEST NO.: *DOG*

"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."

\_\_\_\_\_  
Signature of student

Academic Integrity Task Force, 2004  
<http://www.tamu.edu/aggiehonor/FinalTaskForceReport.pdf>

My signature in this blank allows my instructor to pass back my graded exam in class or allows me to pick up my graded exam in class on the day the exams are returned. If I do not sign the blank or if I am absent from class on the day the exams are returned, I know I must show my Texas A&M student ID during my instructor's office hours to pick up my exam.

Signature of student \_\_\_\_\_

***NO CALCULATORS ALLOWED!***

**This is a 10-question multiple-choice exam; there is no partial credit. Each problem is worth 5 points for a total of 50 points. There will be a 5-point bonus if you have no transgressions. Transgressions include not having the correct Scantron form 882E, not filling out your Scantron form correctly, having a folded or mutilated Scantron, having your cell phone ring or vibrate, not having your TAMU student ID, not following directions, not turning in your exam and Scantron on time (you must be finished filling in your Scantron and exam cover before time is called). *The Scantron will not be returned so also mark all your answers on this test paper.***

**SCANTRON:** Please double check to make sure you have completed your Scantron correctly, as shown below.

**Name:** print your name neatly  
**Subject:** Math 150  
**Date:** September 2009

**Test No.:** *DOG*  
**Period:** your section number

1. Fully simplify  $|-5(5-4i)|$ .

- a.  $\sqrt{41}$
- b. None of these
- c.  $5\sqrt{41}$
- d. 29
- e. 45

2. Find the midpoint of the line segment whose endpoints are  $(-3, -4)$  and  $(7, 2)$ .

- a.  $(-5, -3)$
- b.  $(4, -2)$
- c.  $(1, -2)$
- d. None of these
- e.  $(2, -1)$

3. Completely factor  $2x^3 + 6x^2 - 2x - 6$ .

- a.  $(2x+2)(x-1)(x+3)$
- b.  $2(x+1)(x-1)(x+3)$
- c.  $2(x+1)(x-1)(x-3)$
- d. None of these
- e.  $(2x+2)(2x-2)(2x+6)$

4. Let  $a$  be any real non-negative number. Solve for  $x$ :  $|2x-1| \geq 6a+5$

- a. None of these
- b.  $(-\infty, -3a-2] \cup [3a+3, \infty)$
- c.  $(-\infty, -3a-3] \cup [3a+3, \infty)$
- d.  $[-3a-2, 3a+3]$
- e.  $[-3a-3, 3a+3]$

5. Perform polynomial long division on  $(x^3 + 2x + 8) \div (x + 2)$ . Identify the remainder and express it as a fraction of the divisor.

- a.  $\frac{-4}{x+2}$
- b.  $\frac{4}{x+2}$
- c. None of these
- d.  $\frac{8}{x+2}$
- e.  $\frac{-8}{x+2}$

6. Exactly solve for  $x$ :  $2|-3-x|=10-2x$ .

- a.  $x=1$
- b.  $x=-8, x=1$
- c.  $x=-4, x=1$
- d.  $x=2, x=1$
- e. None of these

7. Exactly solve  $\frac{x^2 + 5x - 24}{x} \leq 0$ .

- a. None of these
- b.  $(-\infty, -8] \cup [0, 3]$
- c.  $[-8, 0) \cup [3, \infty)$
- d.  $(-\infty, -8] \cup (0, 3]$
- e.  $[-8, 3]$

8. Fully simplify  $-2^2 - 36 \div 2 \cdot 3 + 20 - 7^0$ .

- a.  $-31$
- b.  $9$
- c.  $17$
- d. None of these
- e.  $-39$

9. What is the domain of  $\frac{\sqrt{4-x}}{\sqrt[3]{x+10}}$ ?

- a.  $(-\infty, 4]$
- b.  $(-\infty, -10) \cup (-10, -4)$
- c. None of these
- d.  $(-\infty, -10) \cup (-10, 4]$
- e.  $(-10, 4]$

10. Fully simplify  $\frac{\left(\frac{1}{2}\right)^{-20} + (2^2)^{11}}{(2^3)^7 - 2^{23}}$ .

- a.  $2^{44}$
- b.  $\frac{-2}{3}$
- c.  $\frac{1}{4}$
- d.  $\frac{-5}{6}$
- e. None of these

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TEST NO.: **SMILE**

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\_\_\_\_\_  
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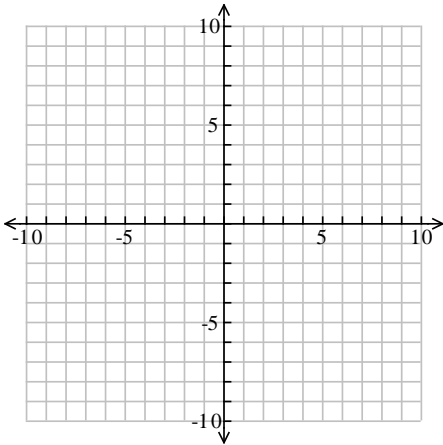
Signature of student \_\_\_\_\_

**You must clear your calculator BEFORE and AFTER the exam.  
MEM (2<sup>nd</sup> +), Reset, ALL, Reset**

**This is a 10-question work-out exam. Each problem is worth 5 points for a total of 50 points. Write all solutions in the space provided as full credit will not be given without complete, correct accompanying work, even if the final answer is correct. Fully simplify all your answers, and give exact answers unless otherwise stated. Justify your answers algebraically whenever possible. Circle your final answer. Remember your units!**

*What is provable should not be believed in science without proof.*  
J. W. R. Dedekind

1. Shade the region of the coordinate plane that contains the set of ordered pairs  $\{(x, y) \mid x \leq 7, y > -5\}$ .



2. Fully simplify  $\sqrt[16]{2^{16} x^{17} y^{32} z^{16}}$  by keeping the radical symbol in your answer (do not use fractional exponents).

3. Fully simplify  $(-3+6i)(\sqrt{-36}-1)$ .

4. Simplify completely and state *all* restrictions on the variable.  $\frac{\frac{5}{x} - \frac{4}{2x+7}}{8 - \frac{9}{x}}$ .

5. Simplify completely. For 5-points extra credit, state **all** restrictions on the variable.

$$\frac{2x-6}{x^2+2x-3} \div \frac{x^2-9}{x^2+8x+15}$$

6. Exactly solve for  $x$ :  $\sqrt{2x+15} - x = 6$ .

7. Rationalize the denominator of  $\frac{3-\sqrt{2}}{8+\sqrt{7}}$ .

8. Completely expand (multiply out) the expression  $[(x+2)(x-2)]^2$ .

9. Exactly solve  $x^{\frac{2}{3}} + 3x^{\frac{1}{3}} = 4$ .

10. What is the exact distance between points  $A(-5, 2)$  and  $B(-3, -8)$ ?