

Math 150

NEATLY PRINT YOUR LEGAL NAME: _____

Exam 1

STUDENT ID: _____

Fall 2011

DATE: _____

SECTION: Circle your correct section number.

Tuesday recitations: 501 503 505 507 509 511

Thursday recitations: 502 504 506 508 510 512

TEST NO.: *CLOUDS*

"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 legal name neatly *(NO NICKNAMES)*

Subject: Math 150

Test No.: *CLOUDS*

Date: September 2011

Period: your section number

1. Fully simplify: $-2^4 + 8^0 - 36 \div 3 \cdot 2 + \left| -4 \right|^{-9} - (-2 \cdot 3^2)$
 - a. 10
 - b. -62
 - c. 24
 - d. -8
 - e. -16

2. Solve $2x^{\frac{2}{3}} = x^{\frac{1}{3}} + 1$ for x . Then calculate the **sum** of all the solutions. If there is only one solution, what is it?
 - a. $\frac{2 - \sqrt[3]{4}}{2}$
 - b. None of these
 - c. $\frac{7}{8}$
 - d. No solution
 - e. $\frac{9}{8}$

3. Solve $|x - 8| + 9 = 4$ for x . Then calculate the **sum** of all the solutions. If there is only one solution, what is it?
 - a. No solution
 - b. 16
 - c. 10
 - d. None of these
 - e. -10

4. A physics equation on the reflection of light from spherical mirrors is $\frac{1}{u} + \frac{1}{v} = \frac{1}{g}$. Solve for v .
 - a. None of these
 - b. $\frac{ug}{u - g}$
 - c. $g - u$
 - d. $\frac{u + g}{ug}$
 - e. $\frac{ug}{g - u}$

5. After performing the operations indicated on $(4 - 5i)(\overline{2 + i})$, identify the imaginary part of the answer.

- a. -14
- b. 3
- c. None of these
- d. -9
- e. 6

6. Perform polynomial long division on $(x^5 + 2x^3 - 5x^2 + 2x - 14) \div (x^3 - 5)$. Identify the remainder.

- a. $-10x^2 + 2x - 24$
- b. $2x - 4$
- c. $-10x^2 + 2x - 4$
- d. $2x - 24$
- e. None of these

7. Solve for $|5x - 3| - 8 < 2$ for x .

- a. $\left(\frac{-13}{5}, \frac{7}{5}\right)$
- b. None of these
- c. 0
- d. $\left(\frac{-13}{5}, \frac{13}{5}\right)$
- e. $\left(\frac{-7}{5}, \frac{13}{5}\right)$

8. Write in simplest form: $\frac{2^{103} - (2^{26})^4}{\left(\frac{-1}{4}\right)^{-50} + 8^{34}}$

- a. $\frac{-2}{5}$
- b. -2
- c. $\frac{-8}{3}$
- d. None of these
- e. $\frac{-8}{5}$

9. Fully simplify: $5\sqrt[3]{40x^4} + 3\sqrt{5x} - 2x\sqrt[3]{5x} - 2\sqrt{45x}$

- a. None of these
- b. $5x\sqrt{5x}$
- c. $5|x|\sqrt{5x}$
- d. $8x\sqrt[3]{5x} - 3\sqrt{5x}$
- e. $38x\sqrt[3]{5x} - 15\sqrt{5x}$

10. Solve $2x^2 \leq 72$ for x .

- a. $(-\infty, 6]$
- b. $[-6, 6]$
- c. None of these
- d. $(-\infty, -6) \cup (6, \infty)$
- e. $(-\infty, -6] \cup [6, \infty)$

Math 150 NEATLY PRINT NAME: _____

Exam 1 STUDENT ID: _____

Fall 2011 DATE: _____

SECTION: Circle your correct section number.

Tuesday recitations: 501 503 505 507 509 511

Thursday recitations: 502 504 506 508 510 512

TEST NO.: **RAIN**

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

Signature of student

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Signature of student _____

NO CALCULATORS ALLOWED!

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!

Apples and Bananas

A teacher was trying to impress her students with the fact that terms cannot be subtracted from one another unless they are like terms. "For example," she continued, "we cannot take five apples from six bananas."

"Well," countered a pupil, "can't we take five apples from three trees?" -<http://sumidiot.com/joke98>

1. Fully simplify $\frac{-(x+h-3)^{-1} + (x-3)^{-1}}{h}$. You do not have to state any restrictions on the variables.

2. Fully simplify $|3i - 4|(\sqrt{-16} - 2)$.

3. Fully simplify $\left(2\frac{3}{4} + \left|\frac{3}{5} - 1\frac{9}{40}\right|\right)^{-\frac{4}{3}}$.

4. Exactly solve $4\sqrt{x-1} = \sqrt{16x-8}$ for x .

$x =$ _____

5-point Bonus: Exactly solve $-2x^2 + 4 = x$ for x .

$$x = \underline{\hspace{10em}}$$

5. Fully simplify: $\frac{\frac{x^3 + 1}{x^2 - 4x + 4}}{\frac{x^2 - x + 1}{x^2 + 3x - 10}}$. Then state all restrictions on the variable.

$$x \neq \underline{\hspace{10em}}$$

6. Solve $\frac{x^2 + 5x}{x - 8} \geq 0$ for x . You must solve using a sign chart as shown in class.

Answer in interval notation: $\underline{\hspace{10em}}$

7. Fully factor $5x^3 - 10x^2 - 180x + 360$.

8. Fully simplify $\sqrt[4]{32x^{23}y^4z^8}$. If needed, use the radical symbol and not fractional exponents.

9. Rationalize the denominator of $\frac{-2}{\sqrt[3]{2(x+1)^2}}$ and then fully simplify. Use a radical sign in the answer and not fractional exponents.

10. Exactly solve $\frac{9x+45}{3-x} + \frac{9}{x+1} - \frac{7x+16}{x+1} = 0$ for x .

$x =$ _____