

Math 98
Exam 2
August 2nd, 2007

Name: _____

1. Your exam contains 5 questions and 6 pages; Please make sure you have a complete exam.
2. The entire exam is worth 100 points. Point values for problems vary and these are clearly indicated. You have 75 minutes for this exam.
3. Make sure to ALWAYS SHOW YOUR WORK; you will not receive any partial credit unless all work is clearly shown. If in doubt, ask for clarification.
4. If you need extra space, use an extra sheet attached to the back of the exam and clearly indicate this.
5. You are allowed one 8.5×11 sheet of handwritten notes (both sides).
6. Leave answers in exact form (as simplified as possible) or round to 4 decimal places.

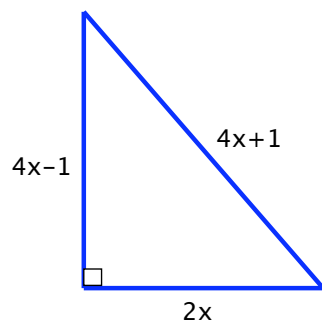
Problem	Total Points	Score
1	12	
2	16	
3	22	
4	36	
5	14	
Total	100	

1. (12 pts.) Simplify the following.

(a) (6 pts.) $\sqrt{-10} \cdot \sqrt{-40}$

(b) (6 pts.) $(3 + 2i) \cdot (-2 + 4i)$

2. (16 pts.) Find the lengths of the sides of the following right triangle.



3. (22 pts.) You try to launch a model rocket to the moon. Unfortunately, the rocket does not even come close and falls back to the ground. The height of the rocket in feet at t seconds is given by the function $h(t) = -16t^2 + 160t$.

(a) (5 pts.) How high is the rocket after 4 seconds?

(b) (8 pts.) When does the rocket land?

(c) (9 pts.) At what time(s) is the rocket 204 feet high?

4. (36 pts.) Solve the following equations.

(a) (9 pts.) $\sqrt{3x + 10} + x = 0$

(b) (9 pts.) $2x^2 + 8x - 13 = 0$ ← Solve by completing the square.

(c) (9 pts.) $2(x - 1)^2 + 4 = 0$

(d) (9 pts.) $2 + \frac{4}{x^2} = -\frac{6}{x}$

5. (a) (6 pts.) Use the discriminant to determine the number and the type (rational, irrational, or imaginary) of solutions of the equation $3x^2 - x - 3 = 0$.

- (b) (8 pts.) Use the quadratic formula to solve the equation from part (a).