

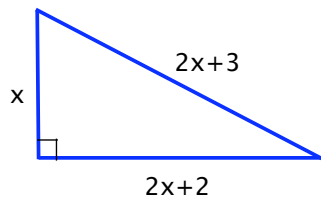
Math 80
Final Exam
March 23, 2007

Name: _____

1. Your exam contains 6 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 2 hours 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, attach extra sheets 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	15	
2	25	
3	10	
4	15	
5	15	
6	20	
Total	100	

1. (15 pts.) Below is a right triangle for which leg B has a length that is 2 more than twice the length of leg A . The hypotenuse is 3 more than twice the length of leg A . Find the lengths of each side.



2. (25 pts.) You finally get to launch your miniature rocket and fortunately, you know that the height h of the rocket (in feet) at t seconds after the launch is given by

$$h = -16t^2 + 80t.$$

- (a) (5 pts.) How high is the rocket 2 seconds after you launch it?

(b) (10 pts.) When will the rocket land?

(c) (10 pts.) When is the rocket 36 feet above the ground? (Note: There will be 2 times.)

3. (10 pts.) If possible, put the following rational expressions in lowest terms.

(a) (5 pts.) $\frac{a^2-16}{4a+16}$

(b) (5 pts.) $\frac{12-p}{p+12}$

4. (15 pts.) Solve the following equations.

(a) (7 pts.) $4y^2 - 16 = 0$

(b) (8 pts.) $t^2 = 2t + 15$

5. (15 pts.) Consider the rational expression $\frac{5x+1}{x^2-5x+6}$.

(a) (5 pts.) Evaluate the rational expression above when $x = 0$.

(b) (10 pts.) For what value(s) is the rational expression undefined?

6. (20 pts.) Carry out the indicated operations. Write each answer in lowest terms and simplify as much as possible.

(a) (5 pts.) $\frac{4x^2y^2}{3} \cdot \frac{6x}{y^3}$

(b) (5 pts.) $\frac{2m+6}{3n} \div \frac{m^2+3m}{9n^2}$

(c) (5 pts.) $\frac{2a}{5b} - \frac{3}{a^2}$

(d) (5 pts.) $\frac{2}{3k^2} + \frac{1}{k^2+2k}$