

Math 101

February 25, 2003

Exam 1

Name: _____ Instructor and Section: _____

There are 100 possible points on this exam. Be sure to read each question carefully and answer the question asked. Show your work neatly and clearly—untidy answers and/or answers without justification may reduce your score. Partial credit may be given for a correct approach even if you don't get to the right answer. Give exact answers unless otherwise asked.

No calculators are allowed

GOOD LUCK!

Problem	Max	Score
1	8	
2	8	
3	14	
4	14	
5	14	
6	14	
7	14	
8	14	
TOTAL	100	

Scratch Paper

1. (8 points) Insert $<$, $>$, or $=$ between each pair of numbers below to make a correct statement.

- (a) 2.25 $\frac{11}{4}$
(b) -3^5 $(-3)^5$
(c) $-\frac{2}{3}$ -0.666
(d) $|-7|$ $\sqrt{(-7)^2}$

2. (8 points) Simplify the following expressions. (Give exact values and put all fractions in lowest terms.)

(a)
$$\frac{-4^2 + 2(6) + (-4)^2}{|3 - 5|}$$

(b) $2 - 6\left(\frac{3}{4} - \frac{2}{3}\right)$

3. (14 points) Solve the following equations as directed.

(a) Solve for y .

$$\frac{4y + 1}{3} = \frac{y + 5}{6} + \frac{y - 3}{6}$$

(b) The surface area of a rectangular solid is given by

$$A = 2HW + 2LW + 2LH,$$

solve for H .

If $W = L = 3$ and $A = 30$ what is H ?

4. (14 points)

(a) An input-output machine accepts any real number as input, and always outputs the number 10, does this relation define a function? Justify your answer.

(b) The following equation defines y as a function of x , state the domain.

$$y = \frac{2}{\sqrt{1-x}}$$

5. (14 points) The cost of pizza varies directly with the square of its radius, if a pizza of radius 5" costs \$2.50, how much will it cost to buy a pizza of radius 7"?

6. (14 points) Solve the following inequalities and graph their solution sets on a number line.

(a) $|-3x + 4| - 4 \leq -1$

(b) $-4x < -24$ and $4x - 2 \leq 10$

7. (14 points) Mari has a candy shop, she wishes to mix 30 pounds of candy worth \$6 per pound with candy worth \$3 per pound to get a mixture worth \$5 per pound. How much of the \$3 candy should she use?

8. (14 points)

(a) Write down an equation for the line which contains the point $(5,6)$ and has a slope of -2 .

(b) What are the x and y intercepts?

(c) Write down the equations for the lines parallel and perpendicular to this one and contain the point $(0,0)$.

