MATH 120 - HW 2
Name:

Please read all directions carefully before answering a set of problems. Any incorrect answers without work will count for 0 points.

(1) Show that the $\sqrt{3}$ is not a rational number.
(2) Given two rational numbers, $a$ and $b$ (with $a < b$), construct another rational number $c$ so that $a < c < b$ and show that the inequality does in fact hold.
(3) Provide a model or method for explaining fraction addition and subtraction to elementary students.
(4) I need a specific mixture of oil, gas, and ethanol for a fuel mixture. If my engine is 500 cubic centimeters big, then I need 6 gallons of fuel which is comprised of 10% oil, 35% gas, and 55% ethanol. Assuming that the gallons, percentages, and cubic centimeters are proportional to each other, how many gallons of gas do I need for a 2300 cubic centimeter engine?