Math 181 F1 Quiz 2 Name:

Two pages, 4 problems, 10 points. Explain each answer, but don't simplify it.

Problem 1 (2 points). *Write* 1/5 *as a percent value (%) and as parts per million (ppm).*

20%.

200,000ppm

Problem 2 (1 point each). *You have 10 balls in a bag: 3 blue and striped, 2 blue and solid, 4 green and striped, 1 green and solid.*

(a) What are the chances of randomly picking a ball that is neither blue nor striped?

The green and solid ball is the only one that is not blue or striped. So 1/10.

(b) Suppose you randomly pick a blue ball. What are the chances it is striped?

5 blue balls, 3 of them striped.

So 3/5.

Problem 3 (2 points). *You are about to buy something for* \$130. *You have a* 15% *off coupon and a* \$20 *coupon. Which one should you use?*

$15\% \cdot 130 = 13 + 6.50 = 19.50.$

(10% and 5%)

So the **\$20 coupon** is a better value.

Problem 4 (2 points each). *In a city of* 100,000 *people, there are* 300 *werewolves. You have developed a werewolf test that successfully identifies a werewolf* 98% *of the time. It also has a false-positive rate of* 1%. *You test the entire population for being werewolves.*

(a) How many non-werewolves did you (problably) diagnose as being werewolves?

There are $100{,}000 - 300 = 99{,}700$ non-werewolves.

1% of them get diagnosed as werewolves.

So **997**.

(b) How many werewolves did you (problably) diagnose as being werewolves?

$300 \times 98\% = 3 \times 98 =$ **294**