PRINT Your Name:_____

Quiz for February 21, 2006

How many strings of three decimal digits
- (a) do not contain the same digit three times?
- (b) begin with an odd digit?
- (c) have exactly two digits that are 4's?

ANSWER:
- (a) There are 10^3 strings of 3 decimal digits; exactly 10 of these contain the same digit three times. So, there are exactly $\boxed{10^3 - 10 = 990}$ strings of 3 decimal digits that do not contain the same digit three times.
- (b) There are 5 ways to pick an odd digit, ten ways to pick the second digit, and ten ways to pick the third digit; so there are $\boxed{5 \cdot 10 \cdot 10}$ strings of three decimal digits that begin with an odd digit.
- (c) If the digit which isn't 4 comes first, then there are 9 choices for the first digit, the other two digits are 4. If the digit which isn't 4 comes second, then there are 9 choices for the second digit, the other two digits are 4. If the digit which isn't 4 comes third, then there are 9 choices for the third digit, the other two digits are 4. So, there are $9 + 9 + 9 = \boxed{27}$ strings of three decimal digits that have exactly two digits that are 4's.