Mathematics 174

Quiz # 24 Name: Key

You must show your work to get full credit.

1. How many bit strings have length between 2 and 5 inclusive.

length 2 $= 2 \cdot 2 = 4$
length 3 $= 2 \cdot 2 \cdot 2 = 8$
length 4 $= 2^4 = 16$
length 5 $= 2^5 = 32$
total number $= 4 + 8 + 16 + 32 = 60$

The number is 60

2. How may arrangements in a row are there from 3 letters from AMPLITUDES (this is a 10 letter word).

$10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

The number is $10! = 3,628,800$

3. How many PINs are there of the form two letters follows by two digits (that is things like $ab12$ or $qq70$).

(a) If there are no restrictions on the letters or digits.

$26 \cdot 26 \cdot 10 \cdot 10$

The number is $26^2 \cdot 10^2 = 67600$.

(b) If there is no repeated letter or digit.

$26 \cdot 25 \cdot 10 \cdot 9$

The number is $26 \cdot 25 \cdot 10 \cdot 9 = 58,500$