Bellwork Wednesday, June 4, 2014

1. You have 5 quarters in your pocket. How many ways can you take out 4 of them to put in a vending machine?

$_5C_4 = 5$

5 ↑ Row, 4 ↑ diag

$_{17}C_{16}$ $_{17}C_1$ → $_5C_1$ $_5C_4$

Pascal's triangle: 1 / 1 1 / 1 2 1 / 1 3 3 1 / 1 4 6 4 1 / 1 5 10 10 5 1

2. The probability that the student gets all 20 problems correct on the test is $\frac{7}{10}$ and the probability that they get the bonus problem correct is $\frac{1}{4}$. Find the following probability as a percent rounded to the nearest tenth.

P(Get all 20 problems correct OR get the bonus correct)=

$\frac{7}{10} + \frac{1}{4} - \frac{7}{10} \cdot \frac{1}{4}$

$.7 + .25 - (.7)(.25)$

77.5%

3. In your pocket are 5 sticks of peppermint gum, 3 sticks of spearmint gum, and 4 sticks of bubble gum. You randomly take a piece of gum and start chewing it. After a few minutes the gum loses its flavor so you randomly take another piece of gum. Find each following probability as a fraction without reducing.

a) P(peppermint and bubble gum)=

$\frac{5}{12} \cdot \frac{4}{11} = \frac{20}{132}$

b) P(spearmint and spearmint)=

$\frac{3}{12} \cdot \frac{2}{11} = \frac{6}{132}$

4. Tickets for your favorite concert are going on sale tomorrow. Ten people show up at the same time to get in line to buy tickets. The closer to the front of the line you get the better seats you'll be able to get. If they only allow 8 people to line up on the sidewalk at once, how many ways can 8 people get in a line to buy tickets?

$_{10}P_8 = 1,814,400$

5. Find the value of each to the nearest hundredth.

a) $\csc 63^\circ$

$$\frac{1}{\sin 63^\circ}$$

$$= 1.12$$

b) $\sec\left(-\frac{9\pi}{7}\right)$

$$\frac{1}{\cos(-9\pi/7)}$$

$$-1.60$$

6. Write both a recursive and an explicit formula for the following sequence:

36, 29, 22, 15, ... $d = -7$

Resursive Formula:

$a_1 = 36$

$a_n = a_{n-1} + -7$

Explicit Formula:

$a_n = 36 + (n-1)(-7)$