BE-Precalc Weds. 2-17-10

① From a choice of 3 meat toppings and 4 vegetable toppings, how many 5-toppings pizzas are possible?

② How many ways can the letters of "TALLAHASSEE" be arranged

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① See Pg 882 Lesson 13-1

② " " " " 13-2

# Precalc Homework Review: Pg. 879 #24-26

10 questions, mult. choice w/ 4 choices.

(24) P(6 correct)

C = correct $\left(\frac{1}{4}\right)$ W = wrong $\left(\frac{3}{4}\right)$

$$(C+W)^{10} = \sum_{r=0}^{10} \frac{10!}{r!(10-r)!} C^{10-r} W^{r}$$

6 correct $\Rightarrow C^6 \Rightarrow$ $C^{10}, C^9, C^8, C^7, C^6$ ($r=4$)

$$\Rightarrow \frac{10!}{4!\,6!} C^6 W^4$$

$$= \frac{10 \cdot 9^{3} \cdot 8^{2} \cdot 7}{4 \cdot 3 \cdot 2} C^6 W^4$$

$$= 210 \left(\frac{1}{4}\right)^6 \left(\frac{3}{4}\right)^4$$

$$210 (.25)^6 (.75)^4$$

$$210 (.00024)(.3164) = 0.0157$$

$$= 1.6\%$$

(25) $P(5 \text{ correct}) \Rightarrow r = 5$

$$\Rightarrow \frac{10!}{5!\,(5)!}(.25)^5(.75)^5$$

$$\frac{\cancel{10}^{2}\cdot\cancel{9}^{1}\cdot\cancel{8}^{3}\cdot 7\cdot 6}{\cancel{5}\cdot\cancel{4}\cdot\cancel{3}\cdot\cancel{2}} \Rightarrow 252(.00098)(.2373)$$

$$= .0586 = \boxed{5.9\%}$$

(26) $P(3 \text{ to } 5) \text{ correct} \Rightarrow P(3) + P(4) + P(5)$

$r=7 \quad r=6 \quad r=5$

$r=7\}$ $\frac{10!}{7!\,3!}(.25)^3(.75)^7 = 120(.0156)(.1335)$

$= \underline{.2499}$

$r=6\}$ $\frac{10!}{6!\,4!}(.25)^4(.75)^6 = 210(.0039)(.1780)$

$= \underline{.1458}$

$r=5\}$ (see #25) $= \underline{.0586}$

$= \boxed{.4543}$

$= \boxed{45\%}$

Continue w/ 20 question test, $P(\geq 60\%)$