Ch. 15 Review Game

Expand out

- $(3x-2)^4$

$4C_0(3x)^4(-2)^0 + 4C_1(3x)^3(-2)^1 + 4C_2(3x)^2(-2)^2 + 4C_3(3x)^1(-2)^3 + 4C_4(3x)^0(-2)^4$

$(1)(81x^4)(1) + 4(27x^3)(-2) + 6(9x^2)(4) + 4(3x)(-8) + 1(16)$

$81x^4 - 162x^3 + 216x^2 - 72x + 16$

$81x^4 - 216x^3 + 216x^2 - 96x + 16$

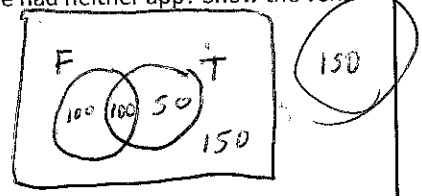
- Find the coefficient of y^3 in $(2x-y)^{12}$

$12C_3(2x)^9(-y^3)$

$220(512x^9)(-y^3)$

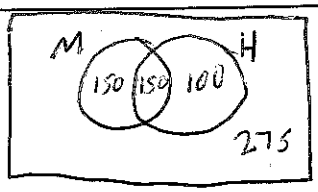
$-112640x^9y^3$

- In a survey of 400 people, 200 have the facebook app and 150 people have the twitter app. 100 people said they had both. How many people had neither app? Show the venn diagram.



- In a student survey, 300 indicated that they would take a math course their senior year and 250 indicated that they would take a history class their senior year. If 150 students plan to take both 275 indicated that they would take neither class, how many students participated in the survey? ~~Show the~~ Venn Diagram.

675



- A basketball team's roster consists of 6 guards, 5 forwards and 3 centers. A starting lineup consists of 2 forwards, 2 guards and 1 center. How many different starting lineups can be made?

$(6C_2)(5C_2)(3C_1) = 450$

- In how many ways can you form a council of three people (who each hold equal power) out of 10 possible candidates.

$nCr(10,3) = {}_{10}C_3 = 120$

$\frac{10!}{3!7!} = 120$

- How many arrangements of answers are possible in a multiple-choice test with 10 questions, each of which has 5 possible answers?

$5^{10} =$

$9,765,625$

- How many license plates can be made using 3 digits followed by 4 letters if digits and numbers can be repeated.

$10^3 \cdot 26^4$

$= 17,576,000$

$456,976,000$

- How many license plates can be made using 3 digits followed by 4 letters if digits and numbers cannot be repeated.

$10 \cdot 9 \cdot 8 \cdot 26 \cdot 25 \cdot 24 \cdot 23$

$= 3$

- How many license plates can be made consisting of letters and digits in any order, but you cannot repeat any letters or digits?

$\frac{36!}{29!} = 42,072,307,200$

- How many ways can 7 people sit in a row?

$7!$

$= 5040$

- How many ways can you arrange the letters of "Pettitte"?

$$\frac{8!}{4!\,2!} = 840$$

- If you have 5 people running for mayor, 4 people running for treasurer and 3 running for sergeant at arms, how many ways can someone vote if they choose not to vote in any or all of the elections?

$6 \cdot 5 \cdot 4 = 120$