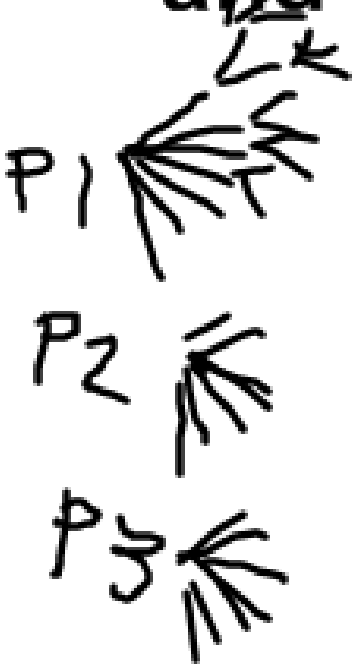
10 - 4
Counting Principle

As the number of choices increases, it becomes less convenient to count the number of possible outcomes.

counting principle: multiply the number of choices at each stage

Ex: How many outfits can be made from 3 pairs of pants, 7 shirts, 2 hats, and 3 pairs of shoes?



$3 \times 7 \times 2 \times 3 = 126$

Brand of computer: Dell, HP, Apple
Size of monitor: 14", 17", 21"
Type of printer: inkjet, laser

3
3
x 2

18

Ex: In a game, a player tosses a number cube and chooses one of 26 alphabet cards. Using the counting principle, find P(prime number, T or Q).

$$\frac{3}{6} \times \frac{2}{26}$$

$$\frac{1}{2} \times \frac{1}{13} = \frac{1}{26}$$

2 3 5

Ex: A six-sided number cube is tossed 5 times. Find P(all even numbers).

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$$

$$\frac{1}{32}$$

Homework:

10 - 4 WS