

## Homework #2

- 10 problems are graded. (3.20, 3.31, 3.41, 3.46, 3.73, 3.88, 4.16, 4.19, 4.26, 4.28)
- Each problem is 5 points.

### Solutions

3.20. The 9 cars (they are different) in a race. The order must be considered to find the ways that they place 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>. We use the permutation formula rather than combination formula.

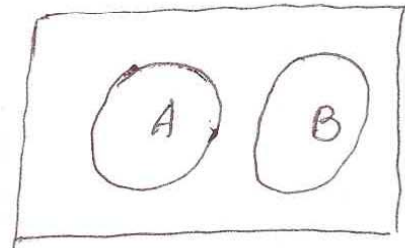
$${}^9P_3 = \frac{9!}{(9-3)!} = \frac{9!}{6!} = 9 \times 8 \times 7 = 504$$

3.41 (c). Since A and B are mutually exclusive

$$\text{then } A \cap \bar{B} = A$$

therefore

$$P(A \cap \bar{B}) = P(A) = .29$$



(d) since  $\bar{A} \cap \bar{B} = \overline{A \cup B}$

$$\text{Then } P(\bar{A} \cap \bar{B}) = P(\overline{A \cup B})$$

$$= 1 - P(A \cup B)$$

$$= 1 - .72 \quad (P(A \cup B) = .72 \text{ by (b)})$$

$$= .28$$

or use Venn diagram

