~Mutually Exclusive & Overlapping Events Notes~

* **Compound event:**
* **Mutually Exclusive:**
* **Overlapping:**
* **Mutually Exclusive formula:**
* **Overlapping Events formula:**
* **Or means**:
* **And means:**

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| Example 1:* Find the probability that a girl’s favorite department store is **Macy’s** or **Nordstrom**.
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| **Macy’s** | **0.25** |
| **Saks** | **0.20** |
| **Nordstrom** | **0.20** |
| **JC Penny’s** | **0.10** |
| **Bloomingdale’s** | **0.25** |

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| * Find the probability that a girl’s favorite store is **not** JC Penny’s.
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| Example 2: * When rolling two dice find
* **P(sum 4 or sum 5)**
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|  | ***1*** | ***2*** | ***3*** | ***4*** | ***5*** | ***6*** |
| ***1*** | 2 | 3 | 4 | 5 | 6 | 7 |
| ***2*** | 3 | 4 | 5 | 6 | 7 | 8 |
| ***3*** | 4 | 5 | 6 | 7 | 8 | 9 |
| ***4*** | 5 | 6 | 7 | 8 | 9 | 10 |
| ***5*** | 6 | 7 | 8 | 9 | 10 | 11 |
| ***6*** | 7 | 8 | 9 | 10 | 11 | 12 |

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| Example 3: * In a deck of cards, find

**P(Queen or Ace)** | * **52 total cards**
* **4 Suits**
* **13 cards in each suit**
* **3 Face cards in each suit**
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| Example 4: * Find the probability that a person will drink **both**.
* A = drink coffee
* B = drink soda
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| Example 5: * Find the P(A ∪ B)
* A = band members
* B = club members
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| Example 6: * In a deck of cards find

 **P(King or Club)** |

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| Example 7: * Find the P(picking a **female** or a person from **Florida**).
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|  | **Female** | **Male** |
| **FL** | **8** | **4** |
| **AL** | **6** | **3** |
| **GA** | **7** | **3** |

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| Example 8: * When rolling 2 dice, find P(an **even sum** or a number **greater than 10**).
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|  | ***1*** | ***2*** | ***3*** | ***4*** | ***5*** | ***6*** |
| ***1*** | 2 | 3 | 4 | 5 | 6 | 7 |
| ***2*** | 3 | 4 | 5 | 6 | 7 | 8 |
| ***3*** | 4 | 5 | 6 | 7 | 8 | 9 |
| ***4*** | 5 | 6 | 7 | 8 | 9 | 10 |
| ***5*** | 6 | 7 | 8 | 9 | 10 | 11 |
| ***6*** | 7 | 8 | 9 | 10 | 11 | 12 |

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| Example 9: **Complementary Events**Find  |  |