~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**. | |  |  | | --- | --- | | **Macy’s** | **0.25** | | **Saks** | **0.20** | | **Nordstrom** | **0.20** | | **JC Penny’s** | **0.10** | | **Bloomingdale’s** | **0.25** | |
| * 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)** | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | ***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**). | |  |  |  | | --- | --- | --- | |  | **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**). | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | ***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 |  |