

MATH 1332 TEST 2: FORMULA SHEET

$$P(A) = \frac{\text{number of ways } A \text{ can occur}}{\text{total number of outcomes}}$$

$$P(\text{not } A) = 1 - P(A)$$

$$\text{odds for event } A = \frac{P(A)}{P(\text{not } A)}$$

$$\text{odds against event } A = \frac{P(\text{not } A)}{P(A)}$$

$$\begin{aligned} P(A \text{ and } B) &= P(A) \times P(B \text{ given } A) \\ &= P(A) \times P(B) \quad (\text{independent events}) \end{aligned}$$

$$\begin{aligned} P(A \text{ or } B) &= P(A) + P(B) - P(A \text{ and } B) \\ &= P(A) + P(B) \quad (\text{non-overlapping events}) \end{aligned}$$

$$P(\text{at least one event } A \text{ in } n \text{ trials}) = 1 - [P(\text{not } A)]^n$$

$$\text{expected value} = \begin{pmatrix} \text{event 1} \\ \text{value} \end{pmatrix} \times \begin{pmatrix} \text{event 1} \\ \text{probability} \end{pmatrix} + \begin{pmatrix} \text{event 2} \\ \text{value} \end{pmatrix} \times \begin{pmatrix} \text{event 2} \\ \text{probability} \end{pmatrix}$$

$${}_nP_r = \frac{n!}{(n-r)!}$$

$${}_nC_r = \frac{n!}{(n-r)! \times r!}$$