

Due: Today

- (1) An inner tube manufacturer makes two styles: regular and ultralight. Regular tubes account for 80% of sales, and ultralight tubes account for 20%. Defects in the tubes happen sometimes, and 10% of the regular tubes and 18% of the ultralight tubes are defective.

If an inner tube is selected at random, what is the probability that it will be defective?

- (2) A company issues 7-digit ID numbers to each of its employees with these constraints:

- The first two digits must be 21 or 31.
- Numbers may not be repeated.
- The last number must be a 5 or a 6.

- a. What is the probability that a randomly selected employee receives the ID number 31-0597-6?
- b. What is the probability that a randomly selected employee receives the ID number 31-0569-6?

- (3) A magician carries three coins: one standard, one two-tailed, and one two-headed.

- a. What is the probability that the magician randomly picks a coin, flips it, and it lands on heads?
- b. If the coin lands on heads, what is the probability that it is the regular coin?

- (4) What is the probability of finding a PA license plate has the letters USA (in that order) followed by a 4-digit number that is divisible by 5?

- (5) If 4 people are in a room together, what is the probability that at least two of them have the same birthday?
Hint: Consider the event complement

- (6) If 23 people are in a room together, what is the probability that at least two of them have the same birthday?
Hint: Consider the event complement

- (7) Find the probability of dealing each of the following 5-card Poker hands

- a. Three of a kind
- b. Straight Flush (5 sequential cards of the same suit)