Q#1- Suppose the test scores of 10 Students are:- 85, 92, 78, 82, 90, 87, 80, 85, 88, 84

Solution

+ Mean = (85+92+78+82+90+87+80+85,88 +84) / 10

Mean = 85

+ Median

78, 80, 82, 84, 85, 85, 87, 88, 90, 92

Median = $\frac{85+85}{2}$ = 85

+ Mode

85 as it appears the most

Q#2- Suppose heights in (cm) of 8 people are:-

165, 172, 168, 160, 175, 162, 170, 168

+ Range :-

175 - 160 = 15

Range = 15cm

+ Variance

Mean height = (165+172+168+160+175+162+170+168)/8

Mean = 167.5cm

Deviations:- -2.5, 4.5, 0.5, -7.5, 7.5, -5.5, 2.5, 0.5

Squared Deviations:-

6.25, 20.25, 0.25, 56.25, 56.25, 30.25, 6.25, 0.25

Average of Π^2 deviations

(6.25 + 20.25 + 0.25 + 56.25 + 56.25 + 30.25 + 6.25 + 0.25) / 8

= 22.5 variance = 22.5

Standard Deviation

$$= \sqrt{\text{Variance}}$$

$$= \sqrt{22.5}$$

Std Dev = 4.74 cm

Q#3- Suppose a fair coin is flipped 10 times, what is the probability of getting exactly 4 heads?

+ If it follows a success

$n = 10$, $p = 0.5$

$P(X=4) = (10(4) \times 0.5^4 \times 0.5^6)$

$P(X=4) = 0.2050$

Q#4 The heights of Adult males in a population follow a normal distribution with a mean 175 cm and Standard Deviation of 7 cm.

Solution

(a) Find the probability that a randomly selected adult male has a height between 168cm and 182 cm.

$$z = \frac{(168 - 175)}{7} = -1$$

$$z = \frac{(182 - 175)}{7} = 1$$

Prob = 0.6826

Q#5- A fair coin is flipped 10 times. What is the probability of getting exactly 6 heads?

Solution

$$P(X=6) = 10C6 \times 0.5^{6} \times 0.5^{4}$$

$$P(X=6) = 0.2109$$

Q#6- The number of customer arrivals at a bank during a given hour follows a Poisson Distribution with a mean of 20 customers per hour

Solution

$\lambda = 20, x = 15$

$$P(x=15) = \frac{(e^{-20} \times 20^{15})}{15!}$$

$P(x=15) = 0.0699$