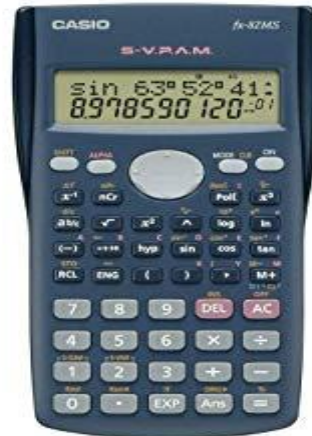


Sta2311

(One)

Calculator: fx-82MS

SD MODE



(Question) Given the data: 25 30 47 80 56 62 74 80

- (1) Find the mean ($\bar{x}$ or μ)
- (2) Find the sample standard deviation (s)
- (3) Find the sample standard deviation (s^2)
- (4) Find the population standard deviation (σ)
- (5) Find the population variance (σ^2)

Answer:

MODE 2

25 M+ 30 M+ 47 M+ 80 M+ 56 M+ 62 M+ 74 M+ 80 M+

To find $\bar{x}$ or μ : SHIFT 2 1 = ($\bar{x} = 56.75$)

To find s then s^2 SHIFT 2 3 = ($s = 21.47$) then x^2 ($s^2 = 460.79$)

To find σ then σ^2 SHIFT 2 2 = ($\sigma = 20.08$) then x^2 ($\sigma^2 = 403.19$)

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REG MODE

(Sections 3.5 + 12.2)

Calculator: fx-82MS

x	10	30	35	60	70	55	40	80
y	2	3	3	2	4	2	4	3

Find $\bar{x}$, s_x , s_x^2 , $\bar{y}$, s_y , s_y^2 , r_{xy} , s_{xy}

Write the estimated linear regression equation.

Determine the type and strength of the relation between the variables.

Find y when $x = 100$ Find x when $y = 6$

Solution: MODE 3 1

10, 2 M+ 30, 3 M+ 35, 3 M+ 60, 2 M+ 70, 4 M+ 55, 2 M+ 40, 4 M+ 80, 3 M+

To find $\bar{x}$: SHIFT 2 1 = ($\bar{x} = 47.5$)To find s_x then s_x^2 : SHIFT 2 3 = ($s_x = 22.99$) then x^2 = ($s_x^2 = 528.57$)To find $\bar{y}$: SHIFT 2 → 1 = ($\bar{y} = 2.88$)To find s_y then s_y^2 : SHIFT 2 → 3 = ($s_y = 0.83$) then x^2 = ($s_y^2 = 0.70$)To find r_{xy} : SHIFT 2 → → 3 = ($r_{xy} = 0.24$)To find s_{xy} : $s_{xy} = r_{xy} s_x s_y = (0.24) (22.99) (0.83) = 4.58$ To find A : SHIFT 2 → → 1 = ($A = 2.46$)To find B : SHIFT 2 → → 2 = ($B = 0.01$)Estimated linear regression equation is $\hat{y} = 2.46 + 0.01 x$ The value $r_{xy} = 0.24$ implies there is a **weak positive** linear relationshipWhen $x = 100$, $y = 2.46 + 0.01 (100) = 3.46$ When $y = 6$, $6 = 2.46 + 0.01 x \rightarrow x = 354$