d. Test the overall significance of Model using
⇒ ANOVA Approach.

1- H_0 : overall Regression Model is insignificant.
    H_1: overall Regression Model is Significant

2- $\alpha = 5\%$.

3- Test-Statistics: $F = \dfrac{MSR}{MSE}$ ⟵ (Mean Square Reg)
                                           (Mean square error)

4- critical Region / p-value based decision.

    if   p-value > α Accept H_0
    if   p-value < α Reject H_0.

OR
    $F_{cal} > F_{\alpha}(v_1, v_2)$ v_1: df no 1 (No of Independent var)
            tab. v_2: df no 2 (error df)

5- conclusion:. Since p-value is less than α, so reject
    H_0 and conclude that Regression Model is Significant.

⟶ Calculation:

ANOVA table.

(Sources of variation) Sov	df	SS	MS	F-calculated	p-value
Regression	1	33.2815	33.2815	$\frac{33.2815}{2.9523} = 11.2731$	0.0016.
error	8	23.6185	2.9523		
Total	9	56.9			

OR $SSR = SST - SSE = 56.9 - 23.6185 = 33.2815$
    $SSR = \Sigma(\hat{Y} - \bar{Y})^2$