Question 6:

Regression equation:

$$\hat{y}_i = 303.27 + 2.542 \cdot x_{1i} + 21.32 x_{2i}$$

Compute predicted value $\hat{y}_i$ for each record

ID	y_i	$\hat{y}$	$(y_i - \hat{y}_i)^2$
1	720	733.36	178.4896
2	650	672.926	2⇆2525.6015
3	750	737.46	157.2516
4	600	637.912	1437.3197
5	780	819.214	1537.7378
6	630	675.468	2067.3390
7	710	751.154	1693.6517
8	640	642.996	8.9760
mean			7606.3669

Mean Square Error $MSE = \dfrac{1}{n}\sum_{i=1}^{n}(y_i - \hat{y}_i)^2$

$$= 950.7959$$

$$R^2 = 1 - \frac{\text{Residual Sum of Square}}{\text{Total Sum of Square}}$$

Total Sum of Square $= \sum_{i=1}^{8}(y_i - \bar{y}_i)^2 = 28600$

$$R^2 = 1 - \frac{7606.3669}{28600} = 0.7340$$

With these metrics, linear regression is appropriate.