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# Unit 9 - Week 7



# Assignment 7

**The due date for submitting this assignment has passed. Due on 2019-09-18, 23:59 IST.**
**As per our records you have not submitted this assignment.**

1) Let $e_i$ be *i* th ordinary residual. Then ***1 point***

- $V(e_i) = \sigma^2(1 - h_{ii})$
- $V(e_i) = \sigma^2$
- $V(e_i) = \dfrac{\sigma^2}{(1 - h_{ii})}$
- $V(e_i) = \dfrac{\sigma^2}{(1 - h_{ii})^2}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$V(e_i) = \sigma^2(1 - h_{ii})$

2) Let $e_{(i)}$ be *i* th PRESS residual. Then ***1 point***

- $V(e_i) = \sigma^2(1 - h_{ii})$
- $V(e_i) = \sigma^2$

$$V(e_i) = \frac{\sigma^2}{(1-h_{ii})}$$

$$V(e_i) = \frac{\sigma^2}{(1-h_{ii})^2}$$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$$V(e_i) = \frac{\sigma^2}{(1-h_{ii})}$$

3) The table below presents the diagonal element $h_{ii}$ of the hat matrix while fitting a multiple linear regression model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$ on 20 observations **1 point**

| $i$ | $h_{ii}$ |
|---|---|
| 1 | .201 |
| 2 | .059 |
| 3 | .372 |
| 4 | .111 |
| 5 | .248 |
| 6 | .129 |
| 7 | .156 |
| 8 | .096 |
| 9 | .115 |
| 10 | .110 |
| 11 | .120 |
| 12 | .178 |
| 13 | .109 |
| 14 | .148 |
| 15 | .333 |
| 16 | .095 |
| 17 | .106 |
| 18 | .197 |
| 19 | .067 |
| 20 | .050 |

Given that $SS_{Res} = 109.95$ and $e_{12} = 3.947$. The value of $MS_{Res}$ is approximately equal to

- 6.467
- 6.108
- 5.786
- none of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
*6.467*

4) Consider the data in Problem 3. The 12th standardised residual $d_{12}$ is approximately equal to **1 point**

- 1.552
- 1.112
- 1.679
- 2.552

No, the answer is incorrect.
Score: 0
Accepted Answers:
*1.552*

5) Consider the data in Problem 3. The 12th studentized residual $r_{12}$ is approximately equal to **1 point**

- 2.055
- 1.992
- 1.866
- 1.711

No, the answer is incorrect.
Score: 0
Accepted Answers:
*1.711*

6) Consider the data in Problem 3. Which of the following is most likely to be an outlying observation with respect to its $X$ values **1 point**

- observation 13
- observation 3
- observation 10
- observation 5

No, the answer is incorrect.
Score: 0
Accepted Answers:
*observation 3*

7) Consider the data in Problem 3. The 12th press residual $e_{(12)}$ is approximately equal to **1 point**

- 4.801
- 4.533
- 4.429
- 5.112

No, the answer is incorrect.
Score: 0
Accepted Answers:
*4.801*

8) PRESS substantially larger than $SS_{Res}$ indicates **1 point**

- fitted model is likely to predict new observation well
- fitted model is not likely to predict new observation well
- cannot say

No, the answer is incorrect.
Score: 0
Accepted Answers:
*fitted model is not likely to predict new observation well*