

Fill in the table entries that are left blank.

problem	Multiple Linear Regression (MLR)	Multivariate Linear Regression (MREG)
	$\mathbf{Y} = \mathbf{X}\boldsymbol{\beta} + \mathbf{e}$	$\mathbf{Z} = \mathbf{X}\mathbf{B} + \mathbf{E}$
1)	$E(\mathbf{Y}) = \mathbf{X}\boldsymbol{\beta}$	$E[\mathbf{Z}] =$
2)	$Y_i =$	$\mathbf{y}_i = \mathbf{B}^T \mathbf{x}_i + \boldsymbol{\epsilon}_i$
3)	$E(\mathbf{e}) =$	$E[\mathbf{E}] = \mathbf{0}$
4)	$\mathbf{H} = \mathbf{P} = \mathbf{X}(\mathbf{X}^T \mathbf{X})^{-1} \mathbf{X}^T$	$\mathbf{H} = \mathbf{P} =$
5)	$\hat{\boldsymbol{\beta}} = (\mathbf{X}^T \mathbf{X})^{-1} \mathbf{X}^T \mathbf{Y}$	$\hat{\mathbf{B}} =$
6)	$\hat{\mathbf{Y}} =$	$\hat{\mathbf{Z}} = \mathbf{P}\mathbf{Z}$
7)	$\mathbf{r} = \hat{\mathbf{e}} = (\mathbf{I} - \mathbf{P})\mathbf{Y}$	$\hat{\mathbf{E}} =$
8)	$E[\hat{\boldsymbol{\beta}}] = \boldsymbol{\beta}$	$E[\hat{\mathbf{B}}] =$
9)	$E(\hat{\mathbf{Y}}) = E(\mathbf{Y}) = \mathbf{X}\boldsymbol{\beta}$	$E[\hat{\mathbf{Z}}] =$
10)	$\hat{\sigma}^2 =$	$\hat{\boldsymbol{\Sigma}}_{\boldsymbol{\epsilon}} = \frac{\hat{\mathbf{E}}^T \hat{\mathbf{E}}}{n - p}$
11)	$V(e_i) = \sigma^2$	$\text{Cov}(\boldsymbol{\epsilon}_i) =$
12)	$E(Y_i) = \boldsymbol{\beta}^T \mathbf{x}_i$	$E[\mathbf{y}_i] =$

problem	Multiple Linear Regression (MLR)	Multivariate Linear Regression (MREG)
13)	$H_0 : \mathbf{L}\boldsymbol{\beta} = \mathbf{0}$ $rF_R \xrightarrow{D}$	$H_0 : \mathbf{L}\mathbf{B} = \mathbf{0}$ $(n-p)U(\mathbf{L}) \xrightarrow{D} \chi_{rm}^2$
14)	LS CLT	MLS CLT $\sqrt{n} \text{vec}(\widehat{\mathbf{B}} - \mathbf{B}) \xrightarrow{D} N_{pm}(\mathbf{0}, \boldsymbol{\Sigma}_\epsilon \otimes \mathbf{W}).$