

# Answers: Introduction to linear regression

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## Summary

Answers to questions relating to the guide on introduction to linear regression.

*These are the answers to [Questions: Introduction to linear regression](#).*

**Please attempt the questions before reading these answers!**

## Q1

**1.1** The y-intercept of the regression line  $\mathbb{E}(Y) = \alpha + \beta x$

**1.2** The gradient of the regression line  $\mathbb{E}(Y) = \alpha + \beta x$

## Q2

**2.1** The difference between the observed value  $y_i$  and the estimated value  $\mathbb{E}(Y_i)$ .

**2.2** It minimizes the squared sum of the residuals to find the optimal regression line for a sample of data.

## Q3

**3.1.**  $\hat{\alpha} = 146.6853$

**3.2.**  $\hat{\beta} = 1.7044$

**3.3.**  $\mathbb{E}(Y) = \alpha + \beta x = \hat{\alpha} + \hat{\beta}x = 146.6853 + 1.7044x$

## **Version history and licensing**

v1.0: initial version created 12/25 by Flora Green as part of a University of St Andrews VIP project.

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