Solutions

Each answer shows the steps, then the **result**.

2.1

- $H_0 : \beta = 0$

2.2

- $t = \dfrac{b}{SE(b)}$

2.3

- $t = \dfrac{3.0}{0.6} = 5.0$

2.4

- the population must be at least 10 times the sample: at least $10 \times 15 = 150$ students

3.1 B

- $\beta = 0$.

3.2 A

- $\dfrac{b}{SE(b)}$.

3.3

(a)

- $H_0 : \beta = 0$

(b)

- $t = \dfrac{2.4}{0.8} = 3.0$

(c)

- $n - 2 = 20$

3.4

(a)

- $H_0 : \beta = 0$, $H_a : \beta > 0$
- β is the true slope of the regression line of test score on hours of revision for all 400 students in the school

(b)

- random: the 15 students were randomly selected; 10%: $15 \leq 0.10 \times 400 = 40$

(c)

- the **equal standard deviation** condition
- the residuals fan out: their spread grows as hours increase, so the SD of y varies with x

3.5 A

- a dotplot or histogram of the residuals should show no strong skewness or outliers