

DATA 363: Checkpoint C3C4C3-7

Eq. of regression line:

$$\text{mutations} = 2.815 + 2.125 \text{ age}$$

- ⊕ To verify the given predictions, we need to plug in the age in the regression equation

① $\hat{\text{mut}} = 2.815 + 2.125(20) = \boxed{45.32} \checkmark$

② $\hat{\text{mut}} = 2.815 + 2.125(30) = \boxed{66.57} \checkmark$

③ $\hat{\text{mut}} = 2.815 + 2.125(30) = \boxed{87.82} \checkmark$

We can see that the predictions by R roughly match our hand-calculated predictions.

C4-13

Acc to the regression model, predicted oil consumption in 2020:

$$\begin{aligned} \log(\text{barrel}) &= -51.59 + 0.02675(2020) \\ &= -51.59 + 54.035 = 2.445 \end{aligned}$$

$$\text{barrels} = 10^{2.445} = 278.6 \text{ billion barrels}$$

This is in stark contrast to the actual oil consumption which is 35.44 billion barrels a year.

- ⊕ Source: ~~worlometers~~ worldometers.info/oil/