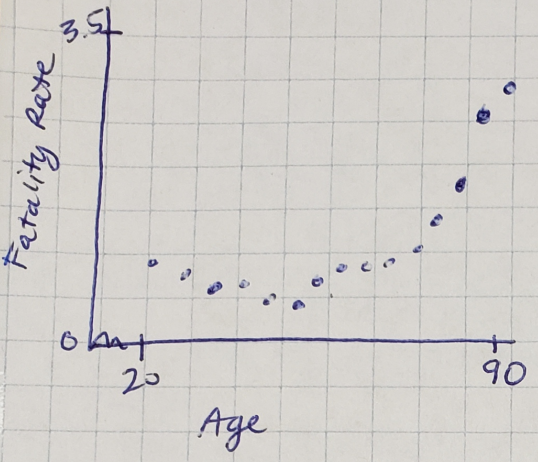
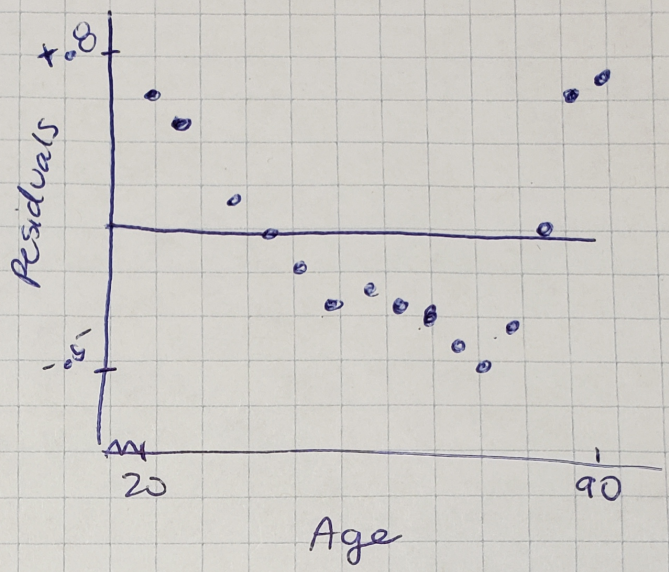
2. (b) - continued

Scatterplot Sketch



Residual Plot Sketch



3. B

4. (a) $b = r\frac{s_y}{s_x} \rightarrow b = (-.52)\left(\frac{3.1}{2.4}\right) = -.672$

$a = \bar{y} - b\bar{x} \quad a = 22.7 - (-.672)(5.6) = 26.461$

$\hat{y} = 26.461 - .672x$

$\hat{y}$: predicted gas mileage; x: Age of car

(b) Slope: (-.672) For each additional year in age of the car, the predicted gas mileage will decrease by about .672 mpg.

y-intercept: (26.461) The predicted gas mileage of a brand new car is about 26.461 mpg.

(c) 0 years old $\rightarrow \hat{y} = 26.461 - .672(0) =$ **26.461 mpg**

10 years old $\rightarrow \hat{y} = 26.461 - .672(10) =$ **19.741 mpg**

20 years old $\rightarrow \hat{y} = 26.461 - .672(20) =$ **13.021 mpg**

In case of extrapolation, this value should not be taken seriously as a prediction.