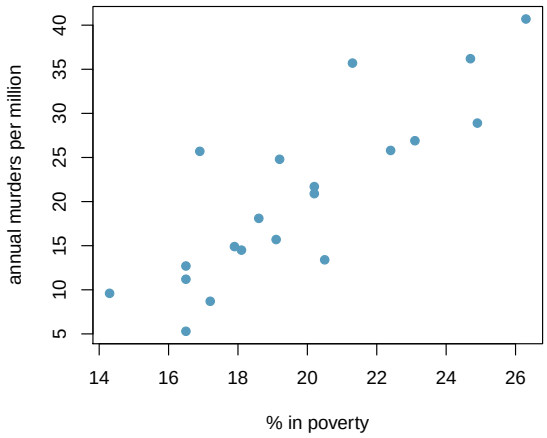
Application exercise 6.1: Linear model

Submit your responses on Sakai, under the appropriate assignment. Only one submission per team is required. One team will be randomly selected and their responses will be discussed.

Murders and poverty

We want to build a model for for predicting annual murders per million from percentage living in poverty in a random sample of 20 metropolitan areas. The scatterplot below shows the relationship between these variables, and the summary table contains all values you will need to construct the linear model.



	annual murders / million (y)	% in poverty (x)
mean	$\bar{y} = 20.57$	$\bar{x} = 19.72$
sd	$s_y = 9.88$	$s_x = 3.24$
	correlation	$R = 0.84$

1. Calculate the slope.
2. Calculate the intercept.
3. Write out the linear model.