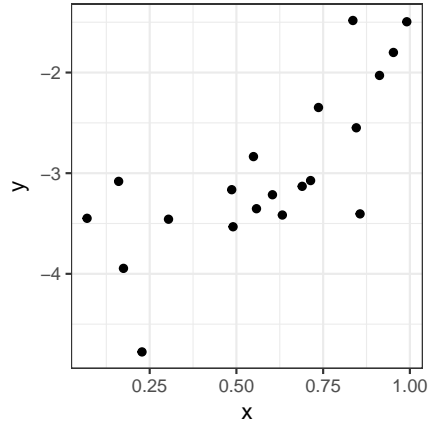


1. For each of the plots below, guess the sample intercept and the sample slope.

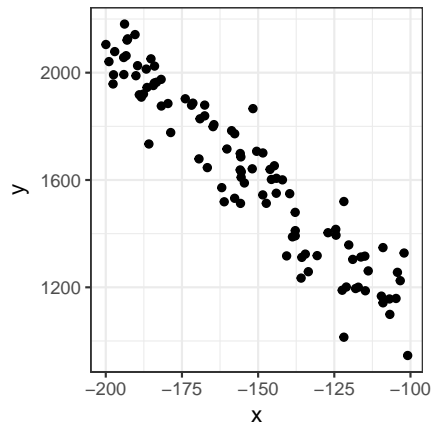
(a) Plot 1



**Answer:**

True intercept is -5 and true slope is 3.

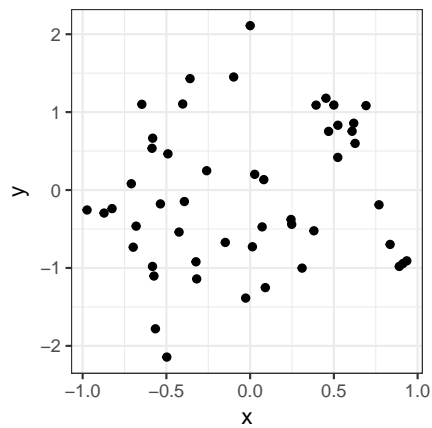
(b) Plot 2



**Answer:**

True intercept is 100 and true slope is -10.

(c) Plot 3



**Answer:**

True intercept is 0 and true slope is 0.

2. Provide interpretations for the sample intercepts and sample slopes in the context of the problems given. When discussing regression analyses, we typically say “ran a regression of  $y$  (response) on  $x$  (explanatory).”

- (a) Pioneer ran a regression of corn yield (bushels per acre) on fertilizer rate (pounds per acre). They found a sample intercept of 80 and a sample slope of 0.5.

**Answer:**

With no fertilizer, the predicted corn yield is 80 bushels per acre. For each 1 pound per acre increase in fertilizer, we predict an increase in corn yield of 0.5 bushels per acre.

- (b) A marketing company ran a regression of the daily sales (\$) on the daily expenditure (\$) on youtube advertising. They found a sample intercept of -100 and a sample slope of 2.

**Answer:**

With no daily expenditure on youtube advertising, we predict daily sales of -\$100. For each extra dollar spend on youtube advertising, we predict a \$2 increase in daily sales.

- (c) A consulting firm is running an efficiency study so run a regression of the amount (\$) of sales attributable to each salesperson in a one week period on the number of meetings each salesperson has with their manager in that week. They found a sample intercept of 10,000 and a sample slope of -1,000.

**Answer:**

With no meetings, we predict \$10,000 sales per salesperson per week. For each additional weekly meeting with the manager, we predict a \$1,000 decrease in sales per salesperson per week.