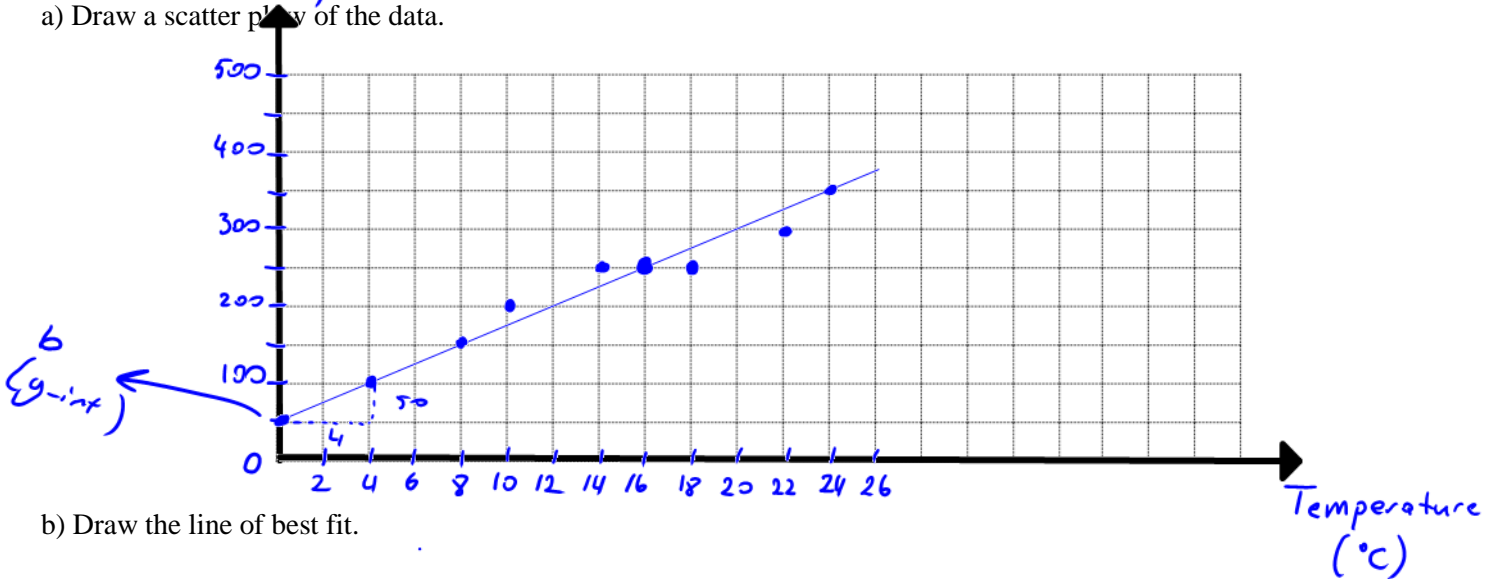1. The local ice cream shop keeps track of how much ice cream they sell versus the noon temperature on that day. Here are their figures for the last 12 days.

ICE CREAM SALES vs TEMPERATURE								
Temperature °C	0	4	8	10	14	16	18	22	24
Ice Cream Sales ($)	50	100	150	200	250	250	250	300	350

a) Draw a scatter plot of the data.

🔑 Sales ($)

b) Draw the line of best fit.

c) Find the equation of the line of best fit in y = mx + b form.

$$m (slope) = \frac{rise}{run} = \frac{50}{4} = 12.5 \qquad y = 12.5x + 50$$

$$b (y-int) = 50$$

d) Use the equation above to predict the ice cream sales for 35 degrees Celcius.

$$y = 12.5x + 50$$
$$= 12.5(35) + 50$$
$$= 487.5$$
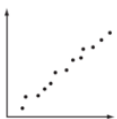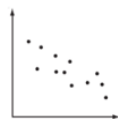
∴ The predicted revenue is $487.50.

2.
- Correlation is **positive** when the values **increase** together
- Correlation is **negative** when one value **decreases** as the other increases.
- The closer to 1 or -1, the stronger the correlation. (ex. 0.85 is strong and 0.20 is weak)
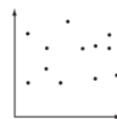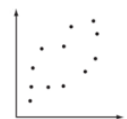

Classify each of the following scatter plots

high positive

low negative

no cor

low positive

3. The 14 students in Jaime's math class measured their heights to the nearest centimetre.

~~150~~ 168 ~~157~~ ~~170~~ ~~158~~ ~~147~~ ~~154~~ 169 ~~143~~ ~~172~~ 166 ~~155~~ 165 ~~157~~

a) Determine the measures of central tendency and the range for this set of data.

MEAN	* (add all numbers) / how many $(150+168+157+170+158+147+154+169+143+172+166+155+165+157) \div 14$ $= (2231) \div 14$ ∴ Mean is 159.36 cm
MEDIAN	* Rearrange the numbers in ascending order. If the set has even number of data, average the two numbers in the middle to find the median. If the set has odd number of data, then the median is the number in the middle. 143 147 150 154 155 157 |157 158| 165 166 168 169 170 172 ⟵———6———⟶ Median = 157.5 ⟵———6———⟶
MODE	* If one number repeated, mode 1; if two numbers repeated bimodal; if more than 3 numbersrepeated multimodal. Mode 1 : 157

b) Xavier is in the 40th percentile. How many students are shorter than Xavier?

40% of 14 the students will be shorter than Xavier.

14 × 40% = 14 × 40 ÷ 100   ∴ 5 students are shorter than Xavier

$= 5.6$ and his height is 157 cm. (6th)

4. Find the quartiles of the data: 3, 7, 8, 5, 12, 14, 21, 13, 18

3   5   7   8   ⑫   13   14   18   21   (Ascending order)
    ⟵—⟶   ⟵—⟶

$Q1 = \frac{5+7}{2} = 6$ $Q3 = \frac{14+18}{2}$

              $Q2 = 12$ $= 16$ $Q1 = 6$
                                              $Q2 = 12$
                                              $Q3 = 16$

5. The following dollar amounts were the hourly collections from a Salvation Army kettle at a local store one day in December: $19, $26, $25, $37, $32, $28, $22, $23, $29, $34, $39, and $31.
Determine the quartiles for the amount collected.

19   22   23 \|25   26 \|28\| 29\| 31   32   34   37   39

          $Q2 = \frac{28+29}{2}$ $Q3 = \frac{32+34}{2}$

$Q1 = \frac{23+25}{2}$ $= 28.5$ $= 33$

$= 24$

              $Q1 = 24$
              $Q2 = 28.5$
              $Q3 = 33$