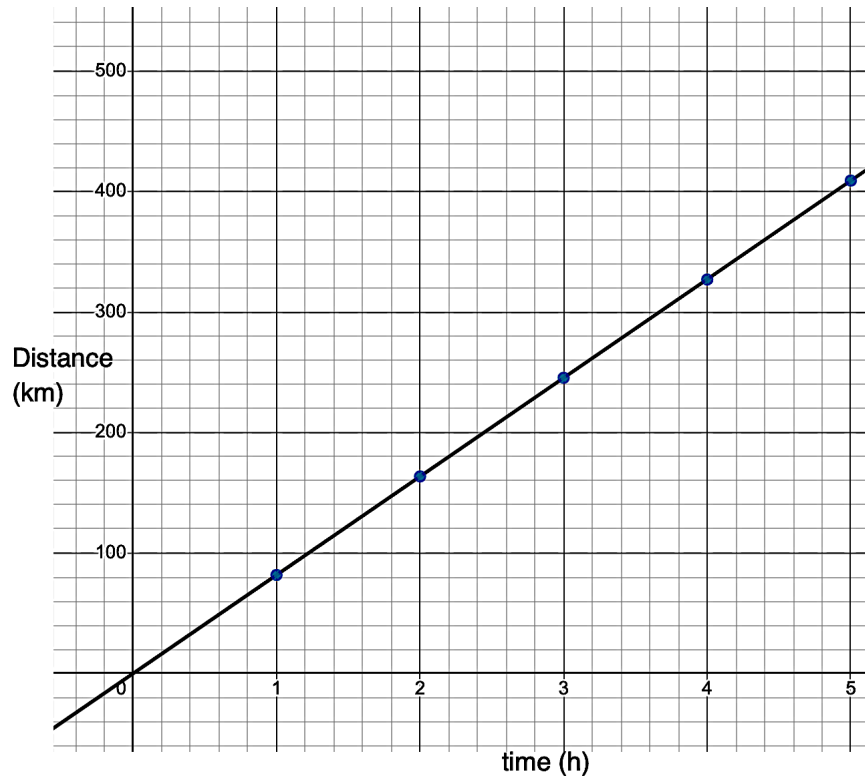Using Graphs to Estimate values.

Interpolation – The method used to estimate the values that lie BETWEEN two data points.

The following graph shows the distance travelled by a car on the highway over 4 hours of travel.

To draw the graph, the drivers marked down the distance travelled every hour then drew a line through all the points.

How would they find the distance travelled in 1.5 hours?

We can use INTERPOLATION to estimate values between 2 data points

☐ begin at 1.5 on the **time** axis

☐ Draw a vertical line to the graph

☐ Draw a horizontal line from the point on the graph to the **distance** axis

The line intersects the distance axis at about _____ km

Therefore, the distance travelled in 1.5 hours is ABOUT _____

How much time would it take to travel 300 km?

☐ begin at 300 on the **distance** axis

☐ Draw a horizontal line to the graph

☐ Draw vertical line from the point on the graph to the **time** axis

It would take about _____ hours to drive 300 km.

If the car maintains the same average speed, we can extend the graph to predict how far the car will go in a given time or predict the time it takes to travel a certain distance.

Ex. Extend the graph and determine how long it would take to travel 550 km
Repeat the process used in interpolation.
It takes a bit more than _____ h or _____ to travel 550 km

Josie borrows some money from her parents for a trip with friends. She repays that money every week as shown by the points on the graph

- Label the axis' on the graph with Time (weeks) and Money ($)

- Determine how much money Josie borrowed originally

_____

Determine how much money she will owe after 3 weeks. _____

How many weeks will it take Josie to pay back HALF the money she borrowed?

_____
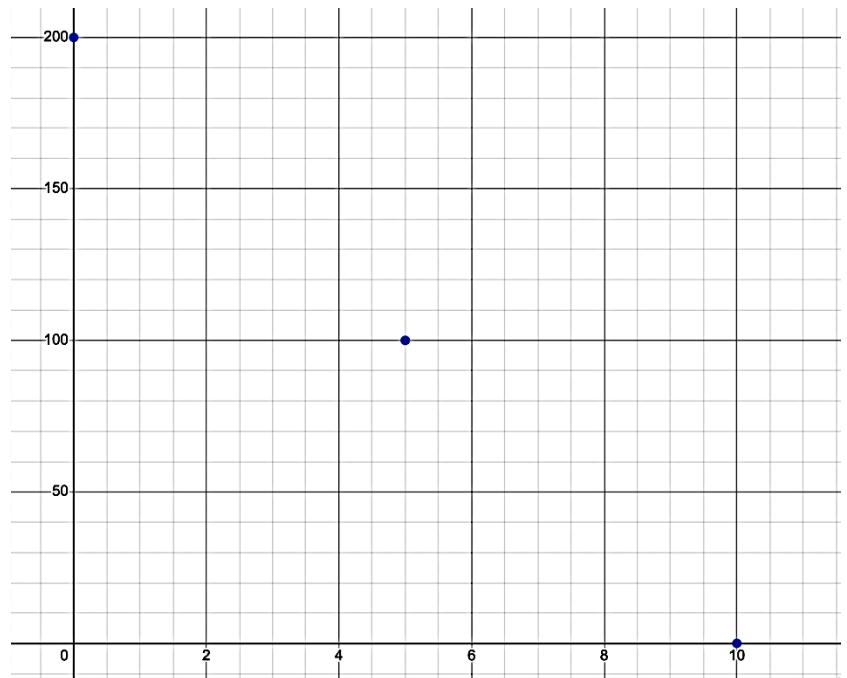
d) How many weeks will it take Josie to pay back $150? _____

Ex. Kim jogs around a track. The graph shows how far she jogs in 10 mins. Assuming she jogs at the same speed…
    a) How far does she jog in 3 minutes?   b) How long will it take her to jog 1600m?
    b) How far will she jog in 12 min?