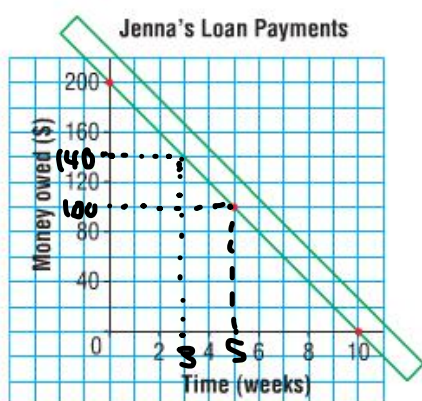## 4.5 Using Graphs to Estimate Values

Example 1   Using Interpolation to Solve Problems

Jenna borrows money from her parents for a school trip. She repays the loan by making regular weekly payments. The graph shows how the money is repaid over time. The data are discrete because payments are made every week.

Jenna's Loan Payments

a) How much money did Jenna originally borrow? **$200**

b) How much money does she still owe after 3 weeks? **$140**

c) How many weeks will it take Jenna to repay one-half of the money she borrowed? **It took 5 weeks to repay $100.**

Extrapolation - to estimate a value that lies beyond data points on a graph.

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Example 2 **Using Extrapolation to Solve Problems**

Maya jogs on a running track. This graph shows how far she jogs in 10 min. Assume Maya continues to jog at the same average speed.
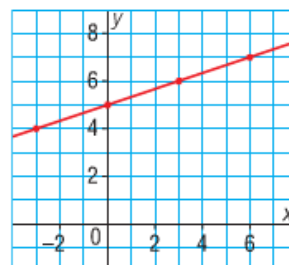
Maya's Jog
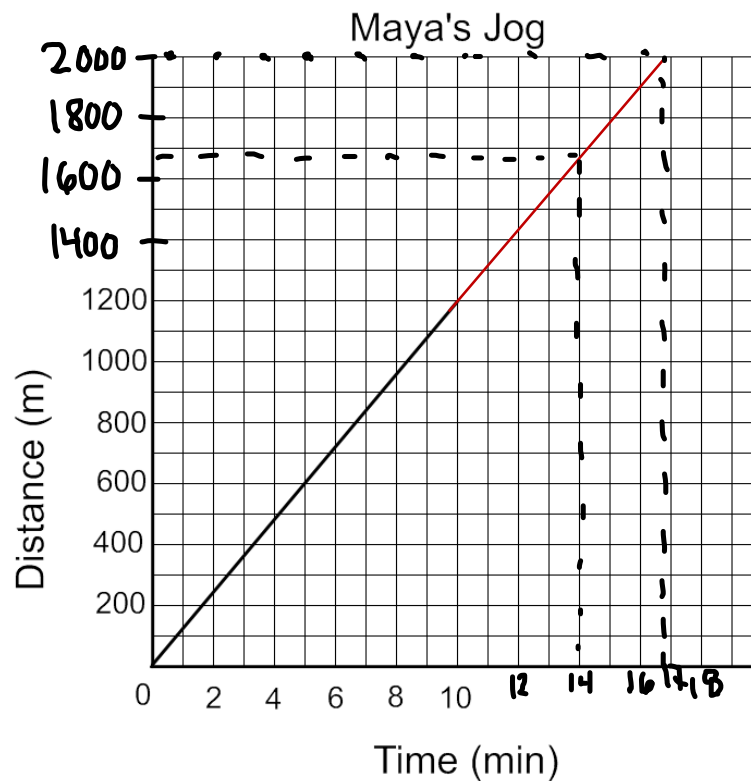
Use the graph.

a) Predict how long it will take Maya to jog 2000m. **16.8 min**

b) Predict how far Maya will jog in 14 min. **1680m**

c) What assumptions did you make? **That she running at a constant speed.**

Interpolation - **to estimate a value that lies between 2 data points on a graph.**

Use this graph of a linear relation.

a) Determine the value of x when $y = 3$.

b) Determine the value of y when $x = 5$.

▶ **A Solution**