# Scatter Plots Graphing Applications

1. The following data represents the value of a car over time.

| Years Owned | Value of Car ($) |
|---|---|
| 1 | 24000 |
| 2 | 21000 |
| 3 | 18000 |
| 5 | 14000 |
| 8 | 9000 |
| 10 | 5000 |

a)      Create a scatter plot of the data.

b)      Draw a line of best fit.

c)      State the trend shown by the data.

d)      Estimate the original price of the car. Explain how you determined your answer.

e)      Approximately how much will the car be worth after 6 years?  Is this an example of interpolation or extrapolation?

f)      Approximately how much will the car be worth after 15 years?  Does this seem reasonable?  Explain.

g)      Approximately how long will it take for the car to be worth $2000?  Is this an example of interpolation or extrapolation?
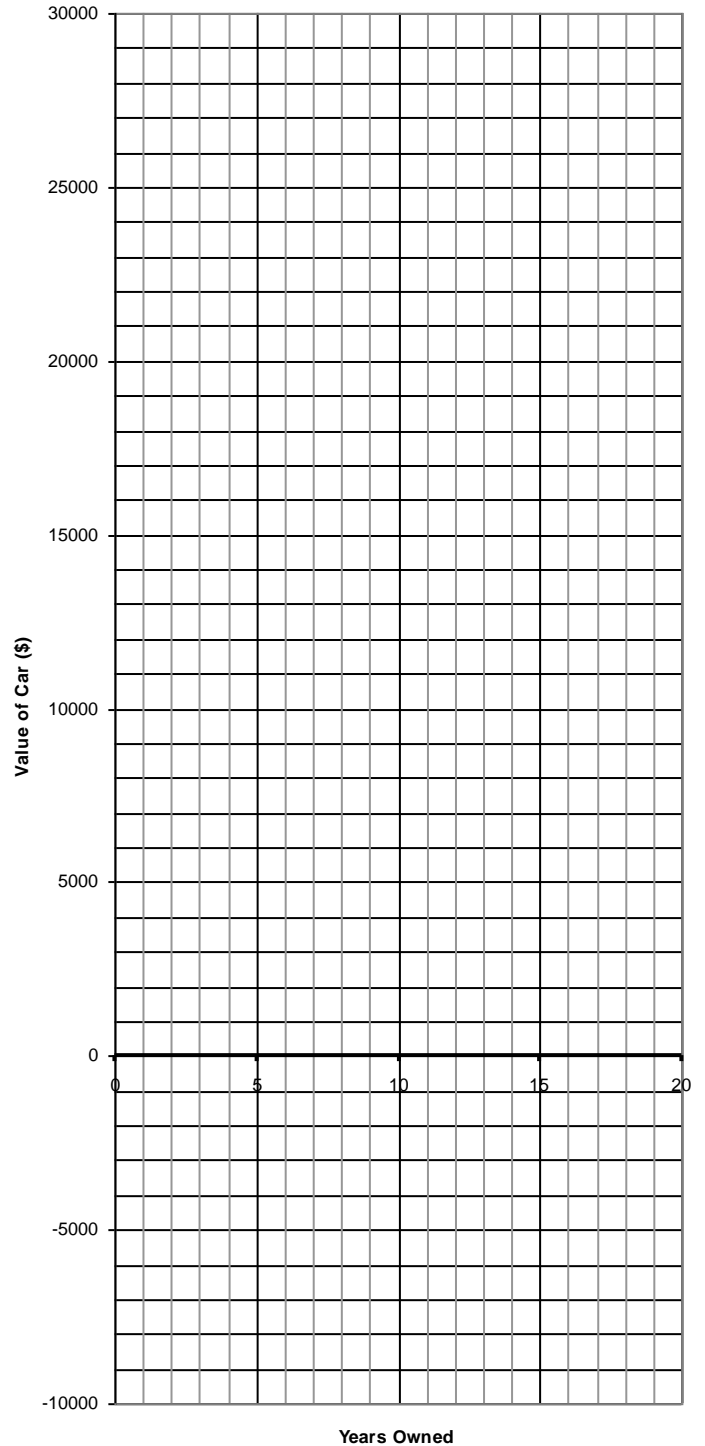
2. A soccer ball is kicked into the air. The height of the ball is measured at regular intervals. The data is indicated on the graph below.

a) If the coordinates of point A are (0.6, 5.4), determine the scale used on the x-axis and the y-axis.

b) Create a title for the graph.

c) State the trend shown by the graph.

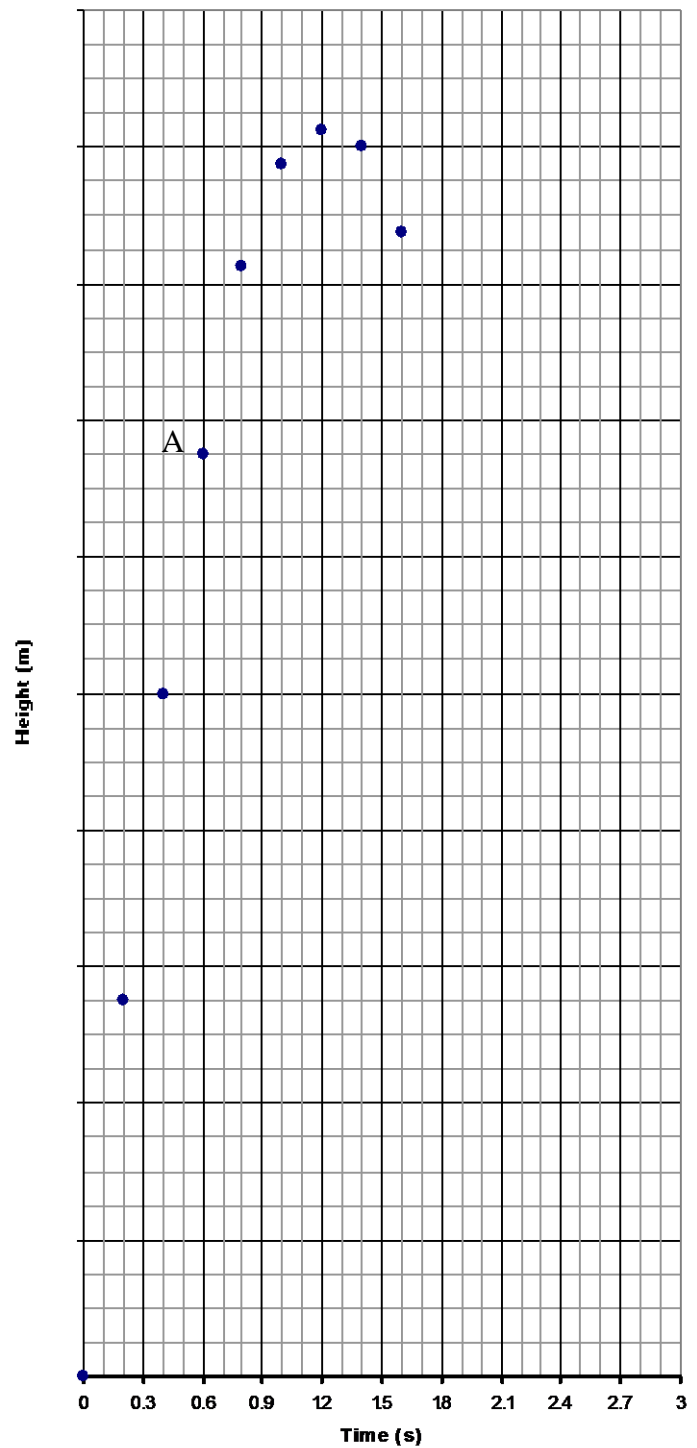d) Draw a curve of best fit for the data.

e) What is the maximum height of the ball? How do you know?

f) Predict the height of the ball after 0.5 seconds.

g) Is your answer from part f) an example of interpolation or extrapolation?

h) Predict the height of the ball after 2.1 seconds.

i) Is your answer from part h) an example of interpolation or extrapolation?

# Graphing Application Questions

1. The following data represents the value of a car over time.

| Years Owned | Value of Car ($) |
|-------------|------------------|
| 1 | 24000 |
| 2 | 21000 |
| 3 | 18000 |
| 5 | 14000 |
| 8 | 9000 |
| 10 | 5000 |

a) Create a scatter plot of the data.

b) Draw in a line of best fit.

c) State the trend shown by the graph.

Over time, the value of the car decreases.

d) What was the original purchase price of the car?

$25500    *Answers* will vary

e) Approximately how much will the car worth after 6 years? Is this an example of interpolation or extrapolation?

$13000    *Answers* will vary

Interpolation
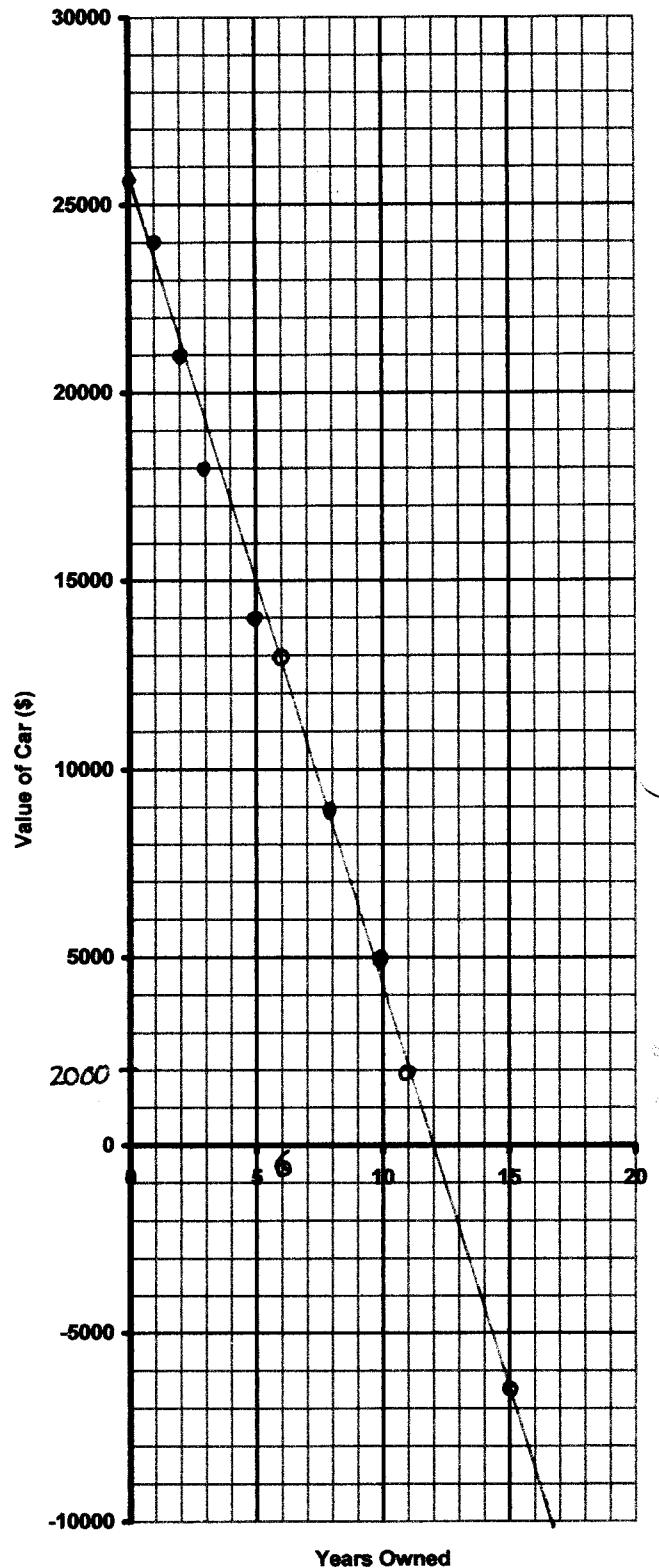
f) Approximately how much would your car be worth after 15 years? Does this seem reasonable?

$ -6500

No, a car cannot be worth less than $0.

g) Approximately how long would it take for the car to be worth $2000? Is this an example of interpolation or extrapolation?

11 years

2. A soccer ball is kicked in the air. The height of the ball is measured in regular intervals. The data is shown in the scatter plot below.

a) If Point A is (0.6, 5.4), determine the scale used on the x and y axes.

$0.6 \div 6 = 0.1$     $0.1 \times 3 = 0.3$
                    (bold lines)

$5.4 \div 27 = 0.2$     $0.2 \times 4 = 0.8$
                    (bold lines)

b) Create a title for the graph.

c) State the trend shown by the data.

The height of the ball increases for the first 1.2 seconds and then starts to decrease.

d) Draw a curve of best fit for the data.

e) Predict the height of the ball after 0.5 seconds.

4.8 m     *Answers will* Vary

f) Is your answer from e) an example of interpolation or extrapolation?

Interpolation

g) Predict the height of the ball after 2.1 seconds.

2.2 m     *Answers Will Vary*

h) Is your answer from g) an example of interpolation or extrapolation?

Extrapolation

Graph axes:
Height (m): 8.0, 7.2, 6.4, 5.6, 4.8, 4.0, 3.2, 2.4, 1.6, 0.8, 0

Time (s): 0.3, 0.6, 0.9, 1.2, 1.5, 1.8, 2.1, 2.4, 2.7, 3.0

Point A at (0.6, 5.4)