4.5 Using Graphs to Estimate Values

Jumpstart Your Thinking

Which equation describes this graph? Justify your answers.

**a)** *x* – *y* = 4



**b)** *x* – 4*y* = 4

**c)** 4*x* – *y* = 1

Let’s Look at the Math

Graphs are very useful ways of organizing information in a visual format. Sometimes we can just use the graph to answer our questions directly and not worry about an equation; these processes are called:

Interpolation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Extrapolation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**1** This graph represents a linear relation.

Is this interpolation or extrapolation?

**a)** Determine the value of *x* for each value of *y*.

**i)** *y* = 3 **ii)** *y* = –2 **iii)** *y* = 7

**b)** Determine the value of *y* for each value of *x*.

**i)** *x* = 0 **ii)** *x* = –2 **iii)** *x* = –4

**2.** The graph shows how the cost of a long distance call changes with the time for the call.

**a)** Estimate the cost of a 7-min call.
Is this interpolation or extrapolation? Explain.

**b)** The cost of a call was $1.00.
Estimate the time for the call.

**c)** The cost of a call was $1.50.
Estimate the time for the call.