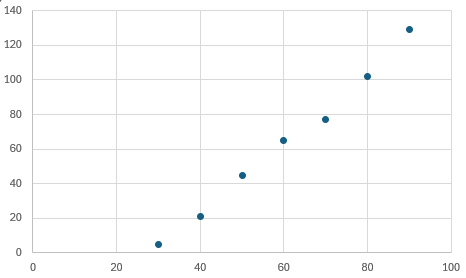
**Barron’s Let’s Review Regents – Algebra I**

# Chapter 12: Regression Curves

## 12.1 Line of Best Fit

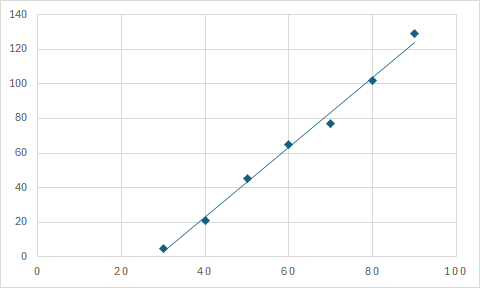
Two points can always be joined with a line. If there more than two points, there may not be one line that passes through all of them. If we need a linear equation for a line that comes close to all the points, there is a feature of the graphing calculator that will calculate the slope and y-intercept of this line.

|  |  |
| --- | --- |
| **Temperature** | **Number of people at the beach** |
| 30 | 5 |
| 40 | 21 |
| 50 | 45 |
| 60 | 65 |
| 70 | 77 |
| 80 | 102 |
| 90 | 129 |

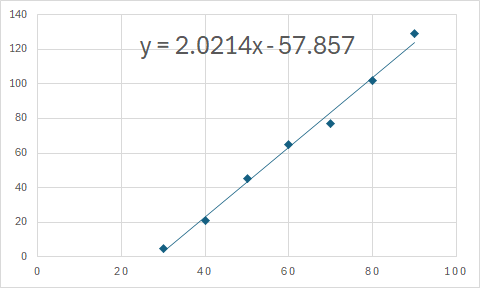


A line drawn through any of the two points will come close but will not pass through any of the other points.

Though there is not one line that passes through all the points, there is a *line of best fit* that will come close to all points. The equation for the line of best fit will be useful in calculating approximate coordinates for other points on the line.



Line of Best Fit with Equation



**Using the Line of Best Fit to Answer Questions About the Real-World Scenarios**

Approximately how many people will be at the beach when the temperature is 100 degrees?

Approximately 144 people will be there when it is 100 degrees.

At what temperature will there be 100 people on the beach?

At a temperature of approximately 78 degrees, there will be 100 people at the beach.

### Check Your Understanding of Section 12.1

1. Multiple-Choice
2. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 1 | 3 |
| 2 | 5 |
| 3 | 4 |
| 4 | 6 |
| 5 | 8 |

1. **y = 1.1x + 1.9**
2. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 1 | 7 |
| 2 | 6 |
| 3 | 6 |
| 4 | 5 |
| 5 | 4 |

**(4) y = -0.7x + 7.7**

1. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 1 | 1 |
| 2 | 3 |
| 3 | 8 |
| 4 | 7 |
| 5 | 9 |

1. **y = 2x - 0.4**
2. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 1 | 4 |
| 2 | 3 |
| 3 | 5 |
| 4 | 4 |
| 5 | 5 |

**(3) y = 0.3x + 3.3**

1. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 2 | 16 |
| 4 | 12 |
| 6 | 2 |
| 8 | 6 |
| 10 | 2 |

1. **y = -1.7x + 17.8**
2. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 10 | 33 |
| 20 | 20 |
| 30 | 10 |
| 40 | 14 |
| 50 | 6 |

**(2) y = -0.6x + 34.6**

1. Calculate the equation for the line of best fit for the following set of data in form. Round *m* and *b* to the nearest tenth.

|  |  |
| --- | --- |
| x | y |
| 10 | 250 |
| 25 | 310 |
| 37 | 450 |
| 46 | 560 |
| 59 | 820 |

**(3) y = 11.5x + 69.8**

1. What is the equation for the line of best fit for the points on this scatterplot?

|  |  |  |
| --- | --- | --- |
|  | x | y |
| A | 2 | 1 |
| B | 4 | 5 |
| C | 6 | 3 |
| D | 8 | 7 |
| E | 10 | 9 |

**(4) y = 0.9x - 0.4**

1. Of these four choices, which line appears to be the best fit for this scatterplot?  
   **(3)**
2. The equation is a line of best fit for which scatterplot?  
   **(1)**