Algebra 2: Linear Regression Homework

Linear Regression Problems:

The data below are actual data collected by Mrs. Bonger regarding her fuel economy.

|  |  |
| --- | --- |
| Gallons of Gas Used | Miles Driven |
| 12.3 | 228.8 |
| 7.9 | 156.4 |
| 14.7 | 308.7 |
| 5.5 | 90.2 |

Use linear regression to find an equation relating the gallons of gas used and the miles driven.

1.       Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_          x stands for:\_\_\_\_\_\_\_\_\_\_\_\_       y-stands for:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.        The slope of the line represents the miles per gallon.  How many miles per gallon does his truck get?     \_\_\_\_\_\_\_\_

3.       If he completely fills his 16 gallon tank, how far could he go before running out of gas? \_\_\_\_\_\_\_\_

The table below shows winning discus throws (in inches) at the Olympics.  In the table, year 0 stands for the year 1900.

|  |  |
| --- | --- |
| Year | Discus Throw |
| -4 | 1147.5 |
| 0 | 1418.9 |
| 4 | 1546.5 |
| 8 | 1610 |
| 12 | 1780 |
| 20 | 1759.25 |
| 24 | 1817.125 |
| 28 | 1863 |
| 32 | 1948.875 |
| 36 | 1987.375 |

4.        What year is year -4? \_\_\_\_\_\_

5.       How many feet was the longest throw? \_\_\_\_\_\_

6.       Use linear regression to find an equation representing discus throw as a function of year.

Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_          x stands for:\_\_\_\_\_\_\_\_\_\_\_\_       y-stands for:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7.       How often are the Olympic Games held?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8.       There were no Olympic Games held in 1916.  Why not? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9.        If the Games had been staged in 1916, what would have been the expected winning throw?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10.    What would be the expected winning throw in 2004?  \_\_\_\_\_\_\_ In 2008? \_\_\_\_\_\_\_