## Unit 3 Lesson 10: Putting It All Together

### 1 Which One Doesn’t Belong: Data Correlations (Warm up)

#### Student Task Statement

Which one doesn’t belong?

A



B



C



D

|  |  |
| --- | --- |
| $x$ | $y$ |
| 3 | 6 |
| 3.75 | 8.50 |
| 7.25 | 7.50 |
| 5.50 | 11 |
| 6 | 9 |
| 8 | 10.25 |

### 2 Electric Power (Optional)

#### Student Task Statement

Here are Elena’s representations of the data set.

|  |  |
| --- | --- |
| energy (kwh) | electric bill price (dollars) |
| 500 | 50 |
| 560 | 57.60 |
| 610 | 65.10 |
| 675 | 70.25 |
| 700 | 74.80 |
| 755 | 90.66 |
| 790 | 92.34 |
| 836 | 105 |
| 892 | 150 |
| 940 | 173 |
| 932 | 182 |

|  |  |
| --- | --- |
| energy (kwh) | electric bill price (dollars) |
| 967 | 170 |
| 999 | 198 |
| 1,005 | 201.22 |
| 1,039 | 215.35 |
| 1,057 | 217 |
| 1,100 | 233 |
| 1,191 | 284.62 |
| 1,150 | 256.98 |
| 1,200 | 289.60 |
| 1,270 | 292 |



After analyzing the data, Elena concludes:

1. An estimate for the correlation coefficient for the line of best fit is $r=-0.98$.
2. Energy consumption and the price of electric bills have a positive relationship.
3. Energy consumption and the price of electric bills have a weak relationship.
4. Using the linear model, the electric bill is $260 when 1,200 kWh are consumed.

What parts of Elena’s interpretation of the data do you agree with and what parts do you disagree with? Explain your reasoning.

### 3 Confident Players (Optional)

#### Student Task Statement

Before Diego’s game, his coach asked each of his players, “On a scale of 1–10, how confident are you in the team winning the game?” Here is the data he collected from the team.

|  |  |  |
| --- | --- | --- |
|  players  |  confidence in winning (1–10)  |  number of points scored in a game |
|  Player A  | 3 | 2 |
|  Diego | 6 | 10 |
|  Player B | 10 | 2 |
|  Player C | 4 | 10 |
|  Player D | 7 | 13 |
|  Player E | 5 | 6 |
|  Player F | 8 | 15 |
|  Player G | 4 | 3 |
|  Player H | 9 | 15 |
|  Player I | 7 | 12 |
|  Player J | 1 | 0 |
|  Player K | 9 | 14 |
|  Player L | 8 | 13 |
|  Player M | 5 | 8 |

1. Use technology to create a scatter plot, a line of best fit, and the correlation coefficient.
2. Is there a relationship between players’ level of confidence in winning and the amount of points they score in a game? Explain your reasoning.
3. How many points does the linear model predict a player will score when his or her confidence is at a 4?
4. Which players performed worse than the model predicted?
5. Did Diego score better or worse than the linear model predicts?



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