MATH 1710 Summer 2010 Dr. Johnson

**Personal Fitness Activity**

**Rock Wall**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Student | Height | Hand Size | Shoe Size | Distance Up The Wall |
| S1 |  |  |  |  |
| S2 |  |  |  |  |
| S3 |  |  |  |  |
| S4 |  |  |  |  |
| S5 |  |  |  |  |
| S6 |  |  |  |  |
| S7 |  |  |  |  |
| S8 |  |  |  |  |

1) Enter your data into the TI-Nspire CAS. Make several scatter plots of the distance up the wall as a function of the (height, hand size, and shoe size).

2) What models best fit the data for each scatter plot?

3) Which is a better fit and why? Does this agree with your prediction?

4) Using the best model, give ALL regression equations.

5) What conclusions can be made based on the data gathered and generated?

6) When does the graph reach its minimum and maximum values?

7) If the model is true, what is the distance up the wall for someone who is 6 feet 2 inches tall?

8) Based on the data, what future trends can be made? Explain.

9) Are there other factors that could have contributed to a student not making it to the top of the wall?

10) Has this activity encouraged you to do some type or form of physical activity in the future? Explain.

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**Personal Fitness Activity**

**One Mile walk (or 6.5 laps)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Student | Height | Hand Size | Shoe Size | Walk 1 Mile Time |
| S1 |  |  |  |  |
| S2 |  |  |  |  |
| S3 |  |  |  |  |
| S4 |  |  |  |  |
| S5 |  |  |  |  |
| S6 |  |  |  |  |
| S7 |  |  |  |  |
| S8 |  |  |  |  |

1) Enter your data into the TI-Nspire CAS. Make several scatter plots of the time of the 1 mile walk as a function of the (height, hand size, and shoe size).

2) What models best fit the data for each scatter plot?

3) Which is a better fit and why? Does this agree with your prediction?

4) Using the best model, give ALL regression equations.

5) What conclusions can be made based on the data gathered and generated?

6) When does the graph reach its minimum and maximum values?

7) If the model is true, what is the time for someone who is 5 feet 2 inches tall?

8) Based on the data, what future trends can be made? Explain.

9) Are there other factors that could have contributed to a student not completing the 1 Mile walk?

10) Has this activity encouraged you to do some type or form of physical activity in the future? Explain.

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**Personal Fitness Activity**

**Ratios and Proportions**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student | Height | Hand Size | Shoe Size | Measure of Waist | Measure of Head | Waist / Head |
| S1 |  |  |  |  |  |  |
| S2 |  |  |  |  |  |  |
| S3 |  |  |  |  |  |  |
| S4 |  |  |  |  |  |  |
| S5 |  |  |  |  |  |  |
| S6 |  |  |  |  |  |  |
| S7 |  |  |  |  |  |  |
| S8 |  |  |  |  |  |  |

1) Enter your data into the TI-Nspire CAS. Make several scatter plots of the distance up the wall as a function of the (height, hand size, and shoe size).

2) What models best fit the data for each scatter plot?

3) Which is a better fit and why? Does this agree with your prediction?

4) Using the best model, give ALL regression equations.

5) What conclusions can be made based on the data gathered and generated?

6) When does the graph reach its minimum and maximum values?

7) If the model is true, what is the head size for someone who has a waist size of 49 inches?

8) Based on the data, what future trends can be made? Explain.

9) Is it possible to have outliers in this data? If so, explain. If not, why not?

10) Is the ratio $\left(\frac{Waist}{Head}\right)$ useful in the real-world? If so, explain? If not, why not?

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Summer 2010

**Personal Fitness Activity**

**Pre-Data observation**

Before you start the exploration, please answer the following questions.

**Rock Wall**

1) Do you think you will make it to the top of the wall? Explain why or why not?

2) Is there a linear, quadratic, or cubic relationship for the following: **Explain All.**

 a) Going up the wall to someone’s height?

 b) Going up the wall to someone’s shoe size?

 c) Going up the wall to someone’s hand size?

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Summer 2010

**Personal Fitness Activity**

**Pre-Data observation**

Before you start the exploration, please answer the following questions.

**One Mile walk (or 6.5 laps)**

1) Do you think you will complete ALL 6.5 laps? Explain why or why not?

2) Is there a linear, quadratic, or cubic relationship for the following: **Explain All.**

 a) Completing ALL 6.5 laps to someone’s height?

 b) Completing ALL 6.5 laps to someone’s shoe size?

 c) Completing ALL 6.5 laps to someone’s hand size?

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Summer 2010

**Personal Fitness Activity**

**Pre-Data observation**

Before you start the exploration, please answer the following questions.

**Ratios and Proportions**

1) How does the measurement of someone’s waist to their head measurement compare?

2) Is there a linear, quadratic, or cubic relationship for the following: **Explain All.**

 a) The ratio of someone’s waist size to head size?

b) $\left(\frac{Waist}{Head}\right)$ to someone’s height?

 c) $\left(\frac{Waist}{Head}\right)$ to someone’s shoe size?

 d) $\left(\frac{Waist}{Head}\right)$ to someone’s hand size?