Running Circles Around the Diameter

Name _____

Class _____

Problem 1 – Gathering the Data

In this activity, you will measure the circumference and diameter of various round objects in both metric and customary units. This data will then be used to investigate relationships.

1. Measure the circumference and diameter of the items available. Store the metric measurements of diameter and circumference to **MDIA** and **MCIR**. Store the customary measurements to **CDIA** and **CCIR**.

   To name a list, press LIST, then arrow to move to the top of L1, 2nd DEL to insert a new list, and then 2nd MATH to input letters for the list name. Once you have input the list name, move down to **DONE** and press ENTER to return to the List screen. Press ENTER again to save the name.

   Repeat for each list. Record your lists below.

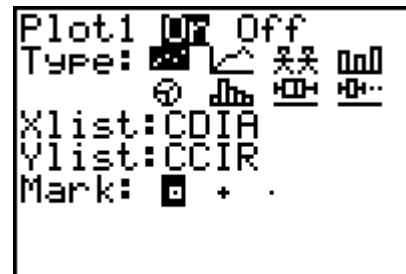   MDIA: _____

   MCIR: _____

   CDIA: _____

   CCIR: _____

2. If there were any objects that you could not measure for the circumference and diameter, list the item and known measurements here. _____

   _____

Problem 2 – Customary Measurements

3. Set up a Stat Plot for **CDIA** vs. **CCIR**. Press 2nd Y= ENTER and match the settings at the right. Then press ZOOM and select **ZoomStat**.

4. Describe the relationship you see in the stat plot.

   _____

   _____

   _____

```
Plot1  On  Off
Type: ▨  ⌁  ⋇  ▥
        ⊙  ⊞  ⊞  ⊞
Xlist:CDIA
Ylist:CCIR
Mark: ▫  +  ·
```

5. What could be done, mathematically, to get from a diameter measurement to a circumference measurement? Use either the graph or the lists to help.

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6. Estimate the unknown measurements for any items listed in Exercise 2.

_____

**7.** On the home screen, divide **CCIR** by **CDIA**. Press 2nd LIST to find the list names. The home screen should read **ʟCCIR/ ʟCDIA**. What is the relationship of the elements in **CDIA** to the elements in **CCIR**? _____

_____

_____

8. Find the mean of the data. Press 2nd LIST ▶ ▶ and select **mean(**. _____

Problem 3 – Metric Measurements

Now look at the relationship between the metric measurements you recorded.

9. Set up a Stat Plot for **MDIA** vs. **MCIR**. Press 2nd Y= ENTER and match the settings at the right. Then press ZOOM and select **ZoomStat**.
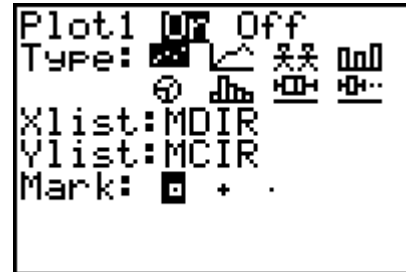
10. Describe the relationship in the stat plot.

_____

_____

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Plot1 On Off
Type: ▦ ⬈ ⣿ ⬛
       ⊕ ⬛ ⬛ ⬛
Xlist:MDIR
Ylist:MCIR
Mark: ■ + ·
```

11. What could be done to the diameter measurement to get the circumference measurement? Use either the graph or the lists to help.

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12. Divide **MCIR** by **MDIA**. How does this relate to your answer in Exercise 7?

_____

_____

13. Is the relationship between **MDIA** and **MCIR** the same or different than **CDIA** and **CCIR**? _____

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