Intro to Statistics Classwork/Homework Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Standard Deviation and Coefficient of Variation Practice

Warm-up: Why do we use CVar?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Highest Grossing Movie Opening Weeks ($) | Top Stock Prices per Share ($) | Most Expensive Cars ($) | Most Expensive Shoes ($) | Fastest Cars (mph) | Fastest Trains  (mph) | Fastest Animals (kph) | Fastest Fish (mph) | Fastest Birds in Flight (kph) | Fastest Dogs (mph) |
| 247.96 | 247160 | 13000000 | 3000000 | 301 | 267 | 389 | 68 | 106 | 45 |
| 208.8 | 4010 | 8000000 | 3000000 | 278 | 249 | 320 | 50 | 95 | 42 |
| 207.4 | 2162.31 | 4800000 | 2000000 | 270 | 224 | 169 | 48 | 88 | 40 |
| 191.27 | 1903.91 | 4500000 | 2000000 | 261 | 220 | 160 | 46 | 80 | 40 |
| 179.1 | 963.48 | 3400000 | 1600000 | 268 | 217 | 160 | 44 | 77 | 38 |
| 174.14 | 958.69 | 3400000 | 1090000 | 256 | 217 | 153 | 43 | 72 | 37 |
| 170 | 949.04 | 3000000 | 1000000 | 250 | 205 | 148.9 | 40 | 70 | 36 |
| 169.18 | 865 | 2900000 | 1000000 | 248 | 205 | 142 | 40 | 68 | 34 |
| 166 | 840.79 | 2700000 | 612000 | 242 | 200 | 129 | 35 | 65 | 25 |
| 160.88 | 709.98 | 2600000 | 500000 | 241 | 186 | 128 | 35 | 65 | 20 |

**Standard Deviation and Coefficient of Variation Formulas**



Classwork/homework:

1. For each of the top ten lists above, find the standard deviation for the population of those top ten items (e.g. the standard deviation among speeds of the top ten fastest birds). You will need a separate sheet of paper. Show your work!

Steps: Find the mean for the list. Subtract the mean from each value. Square your results. Average the squares.

2. Using each of the top ten lists above, find the standard deviation for the population of all items exemplified by those top ten (e.g. the standard deviation among speeds of all birds). You will need a separate sheet of paper. Show your work!

Steps: Square each value. Sum the values. Sum the squares. Plug your results into the formula.

3. For each of the top ten lists above, find the coefficient of variation for the population of those top ten items (e.g. the coefficient of variation among speeds of the top ten fastest birds). Show your work! List your answers below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Movie Openings  | Stock Prices  | Car Prices | Shoe Prices | Car Speeds | Train Speeds | Animal Speeds | FishSpeeds  | Bird Speeds | Dog Speeds  |
|  |  |  |  |  |  |  |  |  |  |

4. Explain, briefly, which top ten list demonstrates the most variation. Does this result make sense given your understanding of prices and speeds?