Homework #1-6: Determine the range and standard deviation of the set of data, round to the nearest hundredth when applicable. You may use your calculator to calculate standard deviation. Remember to select the "s".

1) 10, 10, 14, 16, 8, 8

Mean = $\frac{10+10+14+16+8+8}{6} = 11$

Number	Number - mean	Squared difference
10	10 – 11 = -1	$(-1)^2 = 1$
10	10 – 11 = -1	$(-1)^2 = 1$
14	14 – 11 = 3	$(3)^2 = 9$
16	16 – 11 = 5	$(5)^2 = 25$
8	8 – 11 = - 3	$(-3)^2 = 9$
8	8 – 11 = - 3	$(-3)^2 = 9$
Total		1+1+9+25+9+9=54

I need to divide by the number of data points minus 1. I will divide by 6 – 1 = 5

Standard deviation = $\sqrt{\frac{54}{5}} = 3.286$

Answer: Standard Deviation = 3.29 Range = 16 – 8 = 8

3) 50, 75, 100, 125, 150, 175, 200

Mean = $\frac{50+75+100+125+150+175+200}{7} = 125$

Number	Number - mean	Squared difference
50	50 – 125 = -75	$(-75)^2 = 5625$
75	75 – 125 = -50	$(-50)^2 = 2500$
100	100 – 125 = -25	$(-25)^2 = 625$
125	125 – 125 = 0	$(0)^2 = 0$
150	150 – 125 = 25	$(25)^2 = 625$
175	175 – 125 = 50	$(50)^2 = 2500$
200	200 – 125 = 75	$(75)^2 = 5625$
Total		17500

I need to divide by the number of data points minus 1. I will divide by 7 – 1 = 6

Standard deviation = $\sqrt{\frac{17500}{6}} = 54.006$

Answer: Standard Deviation = 54.01 Range = 200 – 50 = 150

5) 5, 10, 45, 200, 300, 400

Mean = $\frac{5+10+45+200+300+400}{6} = 160$

Number	Number - mean	Squared difference
5	5-160 = -155	$(-155)^2$ = 24025
10	10 – 160 = -150	$(-150)^2$ = 22500
45	45 – 160 = -115	$(-115)^2$ = 13225
200	200 – 160 = 40	$(40)^2$ = 1600
300	300 – 160 = 140	$(140)^2$ = 19600
400	400 – 160 = 240	$(240)^2$ = 57600
Total		138550

I need to divide by the number of data points minus 1. I will divide by 6 – 1 = 5

Standard deviation = $\sqrt{\frac{138550}{5}} = 166.463$

Answer: Standard Deviation = 166.46 Range = 400 – 5 = 395

7) At the Steakhouse Grill, steaks are cut into 12-ounce portions when they are ordered by a customer. For the past month, the manager of Steakhouse Grill has been trying to determine which cook can mostly accurately portion out the meat. The manager collected the mean of sample meat portions for a few weeks for both of his cooks. The results are summarized in the table below.

	Week 1	Week 2	Week 3	Week 4
Opie	12.5	12.3	11.8	11.2
Maynard	12.0	12.2	11.8	12.4

a) Compute the mean portion size for each cook.

Opie mean = $\frac{12.5+12.3+11.8+11.2}{4} = 11.95\ oz$

Maynard mean = $\frac{12.0+12.2+11.8+12.4}{4} = 12.1\ oz$

b) Compute the standard deviations for each cook.

I used my calculator to find these standard deviations. See me if you can't get the correct answer. I can show you how to use your calculator, or do it by hand.

Opie Standard Deviation = .58 oz

Maynard Standard Deviation = .26 oz

c) The manager needs to choose a cook to cut portions of meat throughout the week. Who should he choose? Why?

Maynard's cuts are more consistent and closer to the desired average. I would pick Maynard. I could see an argument for Opie. If you selected Opie and gave a good reason, I would give you credit.