Name:

Standard Deviation and Normal Distribution Worksheet

1. Environment Canada compiled data on the number of lightning strikes per square kilometre in Alberta and British Columbia towns from 1999 to 2008.

   0.42   0.04   0.81   0.40   0.03   0.74

   0.28   0.03   0.70   0.23   0.03   0.66

   0.13   0.02   0.61   0.12   0.01   0.58

   0.10   0.00   0.49   0.07   1.08   0.43

   0.05   0.91   0.42   0.04   0.88

   Determine the mean and standard deviation, to two decimal places.

2. At the end of a bowling tournament, three friends analyzed their scores.
   o Lada's mean bowling score is 125 with a standard deviation of 27.
   o Quinn's mean bowling score is 182 with a standard deviation of 28.
   o Kamal's mean bowling score is 170 with a standard deviation of 20.
   Who is the more consistent bowler and why?

3. Chad recorded the time it takes him to get to school using three different routes each day for one week:

	Day 1	Day 2	Day 3	Day 4	Day 5	$\bar{x}$	σ
Route 1 (min)	13	15	12	12	16	13.6	1.62
Route 2 (min)	20	18	20	12	17	17.4	2.94
Route 3 (min)	16	17	15	17	24	17.8	3.19

   On which route does Chad have a more consistent travel time? Justify.

4. Which set is normally distributed? Quickly sketch a histogram or curve for each set to justify.

Interval	0–9	10–19	20–29	30–39	40–49	50–59
Set A.	2	5	7	10	15	15
Set B.	5	5	4	5	5	0
Set C.	1	5	9	10	4	1
Set D.	8	9	3	11	8	14

5. A teacher is analyzing the class results for a physics test. The marks are normally distributed with a mean ($\bar{x}$ or μ) of 76 and a standard deviation (σ) of 4.
   Sketch the normal curve for the test. What percent of scores are 72 or more?

6. The ages of participants in a bonspiel are normally distributed, with a mean of 40 and a standard deviation of 10 years. Sketch the normal curve. What percent of the curlers are between 30 and 50?

7. The ages of members in a hiking club are normally distributed, with a mean of 32 and a standard deviation of 6 years. Sketch the normal curve. What percent of the members are between 20 and 32?