SPRING 2014 : <u>STAT - 1</u> , Section 10.

HANDOUT 1A - Some computational examples

- 3.73 (p.111) Range $= \text{Max} - \text{Min} = 204 \text{ - } 2 = 202$ tornadoes.

  $n = 12, \ \sum x_i \ = \ 941 \ , \ \sum x_i^2 \ = \ 105,689$

  $$s^2 \ = \ \left(\frac{1}{12-1}\right)\left(105,689 - \left(\frac{[(941)^2]}{12}\right)\right)$$

  $$= \ \left(\frac{1}{11}\right)(105,689 - 73790.0833)$$

  $$= \ 2899.9015$$

  So $s \ = \ \sqrt{2899.9015} \ = \ 53.85$ tornadoes.

- 3.79 (p.111) $n = 17, \ \sum x_i \ = \ 4,977 \ , \ \sum x_i^2 \ = \ 6,957,341$

  (a) $s = 586.3153$ burial mounds.

  (b) No; for this data set it is not a resistant measure.
  (See p.93 to learn what a resistant measure is).

- 3.81. (a) Non built-up roads will have greater variation.
  (b) Range for built-up roads is $103 - 76 = 27$ accidents and for non built-up roads is $102 - 53 = 49$ accidents.
  For built-up roads $n = 7, \ \sum x_i \ = \ 619 \ , \ \sum x_i^2 \ = \ 55,719$ and $s = 12.79$ accidents and for non built-up roads
  $n = 7, \ \sum x_i \ = \ 492 \ , \ \sum x_i^2 \ = \ 36,930$ and $s = 19.79$ accidents. This confirms our intuition in part (a).