

Mean and Standard Deviation WS

Find the mean and sample standard deviation for each data set. Round answers to two decimal places, where necessary.

- 1) Test Scores
 51 37 60 42 52 44 53
 49 52 56 $n=10$

$$\bar{x} = \frac{496}{10} = 49.6$$

$$\bar{x} = 49.6$$

$$\begin{aligned} (51-49.6)^2 &= 1.96 \\ (37-49.6)^2 &= 158.76 \\ (60-49.6)^2 &= 108.16 \\ (42-49.6)^2 &= 57.76 \\ (52-49.6)^2 &= 5.76 \\ (44-49.6)^2 &= 31.36 \\ (53-49.6)^2 &= 11.56 \\ (49-49.6)^2 &= 0.36 \\ (52-49.6)^2 &= 5.76 \\ (56-49.6)^2 &= 40.96 \end{aligned}$$

$$\text{Sum} = 422.4$$

$$\sqrt{\frac{422.4}{9}}$$

$$s = 6.85$$

$$x = 49$$

- 2) Hits in a Round of Hacky Sack
 6 5 5 3 6 18 5 5
 5 13 15 $n=11$

$$\bar{x} = \frac{86}{11}$$

$$\bar{x} = 7.82$$

$$\sqrt{\frac{251.41}{10}}$$

$$s = 5.02$$

$$\begin{aligned} (6-7.82)^2 &= 3.31 \\ (5-7.82)^2 &= 7.95 \\ (5-7.82)^2 &= 7.95 \\ (3-7.82)^2 &= 23.23 \\ (6-7.82)^2 &= 3.31 \\ (18-7.82)^2 &= 108.63 \\ (5-7.82)^2 &= 7.95 \\ (5-7.82)^2 &= 7.95 \\ (5-7.82)^2 &= 7.95 \\ (13-7.82)^2 &= 26.83 \\ (15-7.82)^2 &= 51.55 \end{aligned}$$

$$251.61$$

- 3) Annual Precipitation (Inches)
 68.8 56.6 26.6 11.8 40.8
 39.4 30.6 54.8 68.6 64 $n=11$
 13

$$\bar{x} = \frac{475}{11} = 43.18$$

$$\bar{x} = 43.18$$

$$\sqrt{\frac{4399.79}{11}}$$

$$s = 20.98$$

$$\begin{aligned} (68.8-43.18)^2 &= 656.38 \\ (56.6-43.18)^2 &= 180.10 \\ (26.6-43.18)^2 &= 274.90 \\ (11.8-43.18)^2 &= 984.70 \\ (40.8-43.18)^2 &= 5.66 \\ (39.4-43.18)^2 &= 14.29 \\ (30.6-43.18)^2 &= 158.26 \\ (54.8-43.18)^2 &= 135.02 \\ (68.6-43.18)^2 &= 646.18 \\ (64-43.18)^2 &= 433.47 \\ (13-43.18)^2 &= 910.83 \end{aligned}$$

$$4399.79$$

- 4) Goals in a Hockey Game
 5 3 7 5 7 5 1 5
 2 9 $n=10$

$$\bar{x} = \frac{49}{10} = 4.9$$

$$\sqrt{\frac{52.9}{9}}$$

$$s = 2.42$$

$$\bar{x} = 4.9$$

$$\begin{aligned} (5-4.9)^2 &= 0.01 \\ (3-4.9)^2 &= 3.61 \\ (7-4.9)^2 &= 4.41 \\ (5-4.9)^2 &= 0.01 \\ (7-4.9)^2 &= 4.41 \\ (5-4.9)^2 &= 0.01 \\ (1-4.9)^2 &= 15.21 \\ (5-4.9)^2 &= 0.01 \\ (2-4.9)^2 &= 8.41 \\ (9-4.9)^2 &= 16.81 \end{aligned}$$

$$52.9$$

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5) Test Scores
 39 54 55 49 46 39 58
 38 44 51 38 $n=11$

$$\bar{x} = \frac{511}{11} = 46.45$$

$$(39-46.45)^2 = 55.50 \quad (51-46.45)^2 = 20.70$$

$$(54-46.45)^2 = 57.00 \quad (38-46.45)^2 = 71.40$$

$$(55-46.45)^2 = 73.10$$

$$(49-46.45)^2 = 6.50$$

$$(46-46.45)^2 = 0.20$$

$$(38-46.45)^2 = 55.50$$

$$(58-46.45)^2 = 133.40$$

$$(38-46.45)^2 = 71.40$$

$$(44-46.45)^2 = 6.00$$

$$\frac{550.7}{10}$$

$$S = 7.42$$

$$\bar{x} = 46.45$$

6) # Words in Book Titles
 3 5 2 3 2 2 2 3 $n=9$
 4

$$\bar{x} = \frac{26}{9} = 2.89$$

$$(3-2.89)^2 = 0.01$$

$$(5-2.89)^2 = 4.45$$

$$(2-2.89)^2 = 0.79$$

$$(3-2.89)^2 = 0.01$$

$$(2-2.89)^2 = 0.79$$

$$(2-2.89)^2 = 0.79$$

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$$(3-2.89)^2 = 0.01$$

$$(4-2.89)^2 = 1.23$$

$$550.7$$

$$\frac{8.86}{8}$$

$$S = 1.05$$

$$\bar{x} = 2.89$$

7) Age at First Job
 22 13 13 17 18 16 14 $n=9$
 17 17

$$\bar{x} = \frac{147}{9} = 16.33$$

$$(22-16.33)^2 = 32.15$$

$$(13-16.33)^2 = 11.09$$

$$(13-16.33)^2 = 11.09$$

$$(17-16.33)^2 = 0.45$$

$$(18-16.33)^2 = 2.79$$

$$(16-16.33)^2 = 0.11$$

$$(14-16.33)^2 = 5.43$$

$$(17-16.33)^2 = 0.45$$

$$(17-16.33)^2 = 0.45$$

$$\frac{64.01}{8}$$

$$S = 2.83$$

$$\bar{x} = 16.33$$

8) Car Weights (kg)
 1,355 1,655 1,610 1,235 1,775
 1,290 1,690 1,415 1,865 $n=9$

$$\bar{x} = \frac{13890}{9} = 1543.33$$

$$(1355-1543.33)^2 = 35468.19$$

$$(1655-1543.33)^2 = 12470.19$$

$$(1610-1543.33)^2 = 4444.89$$

$$(1235-1543.33)^2 = 95067.39$$

$$(1775-1543.33)^2 = 53670.99$$

$$(1290-1543.33)^2 = 64176.09$$

$$(1690-1543.33)^2 = 21512.09$$

$$(1415-1543.33)^2 = 16468.59$$

$$(1865-1543.33)^2 = 103471.59$$

$$\frac{406750.01}{8}$$

$$S = 225.49$$

$$\bar{x} = 1543.33$$

9) Annual Precipitation (Inches)
 30 30.4 30.6 62.2 51.6 11
 10.6 21.6 15.8 $n=9$

$$\bar{x} = \frac{264}{9} = 29.31$$

$$(30-29.31)^2 = 0.48$$

$$(30.4-29.31)^2 = 1.19$$

$$(30.6-29.31)^2 = 1.66$$

$$(62.2-29.31)^2 = 1081.75$$

$$(51.6-29.31)^2 = 496.84$$

$$(11-29.31)^2 = 335.26$$

$$(10.6-29.31)^2 = 350.06$$

$$(21.6-29.31)^2 = 59.44$$

$$(15.8-29.31)^2 = 182.52$$

$$\frac{2509.2}{8}$$

$$S = 17.71$$

$$\bar{x} = 29.31$$

10) Minutes to Run 5km
 23.8 43.7 35 27 31 42.5
 33.3 31 35.2 $n=9$

$$\bar{x} = \frac{302.5}{9} = 33.61$$

$$(23.8-33.61)^2 = 96.24$$

$$(43.7-33.61)^2 = 101.81$$

$$(35-33.61)^2 = 1.93$$

$$(27-33.61)^2 = 43.69$$

$$(31-33.61)^2 = 6.81$$

$$(42.5-33.61)^2 = 79.03$$

$$(33.3-33.61)^2 = 0.10$$

$$(31-33.61)^2 = 6.81$$

$$(35.2-33.61)^2 = 2.53$$

$$\frac{338.95}{8}$$

$$S = 6.51$$

$$\bar{x} = 33.61$$

338.95