

HW: Worksheet

**Warm up:**

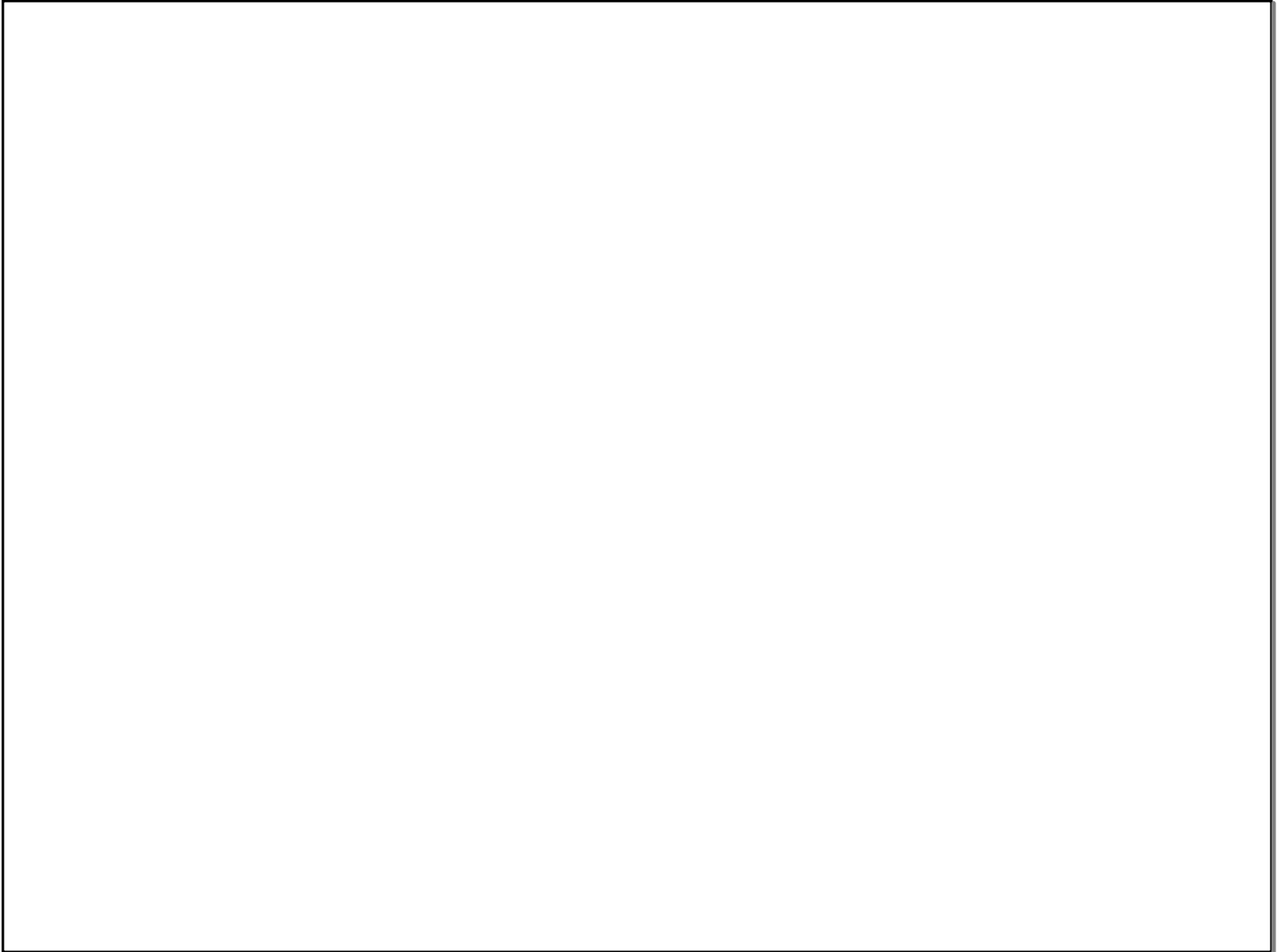
Find the mean for each student.

**Math Test Grades**

Student A {82, 88, 84, 86, 80}  $\frac{420}{5} = 84$

Student B {89, 57, 98, 76, 100}  $\frac{420}{5} = 84$

March 14, 2022



The mean absolute deviation (MAD) measures how much the data points in a set vary from the mean

$$\begin{array}{l}
 84 - 82 = 2 \\
 88 - 84 = 4 \\
 84 - 84 = 0 \\
 86 - 84 = 2 \\
 84 - 80 = 4
 \end{array}
 \quad
 \frac{2 + 4 + 0 + 2 + 4}{5} = \frac{12}{5} = 2.4$$

Student A {82, 88, 84, 86, 80}  $\text{mean} = 84$   $\text{MAD} = 2.4$

Student B {89, 57, 98, 76, 100}  $\text{mean} = 84$   $\text{MAD} = 14$

$$\begin{array}{l}
 89 - 84 = 5 \\
 84 - 57 = 27 \\
 98 - 84 = 14 \\
 84 - 76 = 8 \\
 100 - 84 = 16
 \end{array}
 \quad
 \begin{array}{l}
 |89 - 84| \\
 |57 - 84| \\
 |98 - 84| \\
 |76 - 84| \\
 |100 - 84|
 \end{array}
 \quad
 \frac{5 + 27 + 14 + 8 + 16}{5} = \frac{70}{5} = 14$$

6, 9, 6, 9, 8, 10

$$\text{mean} = \frac{48}{6} = 8$$

$$8 - 6 = 2$$

$$9 - 8 = 1$$

$$8 - 6 = 2$$

$$9 - 8 = 1$$

$$8 - 8 = 0$$

$$10 - 8 = 2$$

$$\frac{2 + 1 + 2 + 1 + 0 + 2}{6} = \frac{8}{6} = 1.33$$

$$\text{MAD} \approx 1.33$$

Paula's grades on her history tests this semester are 79, 93, 92, 86, and 90. Find the mean and MAD.

$$\text{mean} = \frac{440}{5} = 88$$

$$88 - 79 = 9$$

$$93 - 88 = 5$$

$$92 - 88 = 4$$

$$88 - 86 = 2$$

$$90 - 88 = 2$$

$$\frac{9 + 5 + 4 + 2 + 2}{5} = \frac{22}{5}$$

$$\text{MAD} = 4.4$$

Lengths of folk songs (seconds):

128, 165, 182, 141

$$\text{mean} = 154$$

$$154 - 128 = 26$$

$$165 - 154 = 11$$

$$182 - 154 = 28$$

$$154 - 141 = 13$$

$$\frac{26 + 11 + 28 + 13}{4}$$

$$\text{MAD} = 19.5$$

Lengths of pop songs (seconds):

90, 98, 102, 94

$$\text{mean} = \frac{384}{4} = 96$$

$$96 - 90 = 6$$

$$98 - 96 = 2$$

$$102 - 96 = 6$$

$$96 - 94 = 2$$

$$\frac{6 + 2 + 6 + 2}{4}$$

$$\frac{16}{4} = 4$$

$$\text{MAD} = 4$$

# Practice

