

Practicing Mean, Median and Mode

The mean, median and mode are **measures of central tendency**, meaning that they give you some idea of a set of data, like wages.

Mode = the most frequently occurring value in a data set.

Median (the middle) = the middle value of an **ordered** data set with an odd number of values, or the average of the **two middle values** of a data set with an even number of values

$$\text{Mean (also called average)} = \frac{\text{The sum of all the values in the data set}}{\text{the number of values in the data set}}$$

Example: Sophie makes \$13.85/h working at Thrifty's. Over five weeks she worked the following hours:

Week 1: Friday 6 hours; Saturday 6 hours

Week 2: Monday 4 hours; Friday 4 hours; Saturday 4 hours

Week 3: Saturday 6 hours

Week 4: Friday 2 hours; Saturday 10 hours (note the overtime hours!)

Week 5: Thursday 4 hours; Saturday 4 hours.

Calculate the mode, median and mean of Sophie's **weekly earnings**.

Since we want the mode, median and mean of Sophie's wages, we must first calculate her wages:

$$\text{Week 1 wages} = (6h + 6h) \times \$13.85/h = 12h \times 13.85/h = \$166.20$$
$$\text{Week 2 wages} = (4h + 4h + 4h) \times \$13.85/h = 12h \times \$13.85/h = \$166.20$$

Week 3 wages = 6h × \$13.85/h = \$83.10

Week 4 wages = $(2h + 8h + 2h \times 1.5) \times \$13.85 = \$180.05$ (I multiplied the 2h of overtime by 1.5 because, by law in BC, any work time over 8 hours per day earns time and a half, as we learned in term 3.)

$$\text{Week 5 wages} = (4h + 4h) \times \$13.85/h = 8h \times \$13.85/h = \$110.80$$

Now, order the weekly wages: \$83.10, \$110.80, \$166.20, \$166.20, \$180.05

Number the values: 1 2 3 4 5

Mode = \$166.20 (Occurs twice) **Median = \$166.20** (Value #3 is the middle)

$$\text{Mean} = \frac{83.10 + 110.80 + 166.20 + 166.20 + 180.05}{5} = \frac{706.35}{5} = \$141.27$$

Instructions: Do the following three practices following the instructions above and referring to the Measures of Central Tendency sheet when you have problems. The last problem is your test problem. Send me your answer and I will confirm if it is correct.

Problem 1: Zach works in construction as a casual labourer when someone can't make all or part of their shift. Over six weeks he works the following shifts for \$13.85/h.

Week 1: Monday 8 hours; Tuesday 8 hours

Week 2: Wednesday 4 hours; Thursday 8 hours; Friday 8 hours

Week 3: Monday 8 hours; Friday 8 hours

Week 4: Tuesday 4 hours; Thursday 4 hours

Week 5: Monday 4 hours; Thursday 4 hours; Friday 8 hours

Week 6: Monday 8 hours; Tuesday 8 hours; Wednesday 8 hours; Thursday 8 hours

Calculate the mode, median and mean of Zach's **weekly earnings**.¹

¹ Mode = \$221.60

Median = \$221.60

Mean = \$249.30

Problem 2: Calculate the mode, median and mean of the following set of numbers:²

25, 23, 32, 45, 32, 38, 28, 41, 45, 33, 29, 42, 45, 22, 35

Problem 3: Alexis is a hair stylist in Victoria, BC. In one shift, she earned the following tips:

\$5.00, \$2.00, \$0, \$20.00, \$19.65, \$7.89, \$8.50, \$5.00

Calculate the mode, median and mean of Alexis's tips.³

² Mode = 45 median = 33 mean = 34.3...

³ Mode = \$5.00 median = \$6.45 mean = \$8.51

Test Question: Email your answers to this problem at larry.green@sd71.bc.ca and I will confirm your answer. If you do not get this correct, I will email you a second set of mode, median and mean questions to help you complete your understanding of the first statistics lessons.

A large grocery store sells 13 varieties of whole wheat bread. The prices per loaf are:

\$2.59, \$5.99, \$3.49, \$3.99, \$4.99, \$3.49, \$3.99, \$5.49, \$5.99, \$4.29, \$4.69, \$4.99, \$5.09

Calculate the mean, median, and mode prices.