

**WARM UP: *Time limit: 5 mins, MAX.***

We want to survey a sample of 80 students.

- a) How many boys in Grade 5 should be surveyed?
- b) How many girls in Grade 6 should be surveyed?

	# of girls	# of boys
Grade 5	70	90
Grade 6	100	140

**ANSWER:**

How many students are there in total? **400**

a)  $\frac{80}{400} = \frac{x}{90}$  18 boys      b)  $\frac{80}{400} = \frac{x}{100}$  20 girls

**Learning Intention:**

Goals: To revisit the ideas of mean, median, and mode, and to calculate weighted mean.

**Agenda:**

- 1) Warm-Up
- 2) Homework Corrections
- 3) World10-2



# HOMEWORK (10-1, PAGE 155)

2) The following table shows the distribution of the 15 000 voters in a given town.

Area	Women	Men	Women Surveyed	Men Surveyed
Downtown	1200	1100	60	55
South End	1500	1500	75	75
East End	1000	1200	50	60
North End	2800	1200	140	60
West End	1700	1800	85	90

A sample of 750 people is required. This sample must be representative of the population distribution shown in the above. Complete the table



# HOMEWORK (10-1, PAGE 155)

3) A consultant from the government is looking into how news organizations gather information. The number of companies is shown below from each different sector.

Business	News Paper	Online	Television
Number of companies	250	200	50

$$\frac{40}{500} = \frac{x}{200}$$

The survey will be for 40 companies. How many Online companies will he survey if it is to be a representative sample?

*16 companies*

4) Air Bud 4: the Return of Buddy Holly, received horrible reviews in theatres. The following people who walked out of the theatre during the film are shown below. 24 of them were polled as a representative sample. Which statement is true?

	Dog Owners	Cat Owners	Turtle Owners	Total
Population	32	24	8	64
Sample	12	9	3	24

- a) 14 dog owners are surveyed
- c) 40 people were surveyed

- b) 13 cat owners are surveyed
- d) 3 turtle owners are surveyed



# WORLD 10-2:

## MEAN, MEDIAN, AND MODE

### Learning Intention:

Goals: To revisit the ideas of mean, median, and mode, and to calculate weighted mean.

### Success Criteria:

- 1) I calculate the mean by finding the sum of all the numbers in the list, divided by the number of items.
- 2) I know that the median is the middle number in a list, and I have to watch out for even or odd lists
- 3) I know that the mode is the most common number.
- 4) I can calculate a weighted average.

# DEFINITIONS:

Mean: The sum of the numbers in a list, divided by the number of items in the list.

Median: The middle number in a list

Mode: The most common number in a list.

- If no values are repeated, there is no mode.
- You can have more than one mode!



# EXAMPLE 1: FIND THE MEAN, MEDIAN, MODE OF THE FOLLOWING LIST

12      10      7      10      15

*Before you do anything else, put the list in order!*

7      10      10      12      15

$$\text{Mean: } \frac{7 + 10 + 10 + 12 + 15}{5} = 10.8$$

Median: - There are 5 items in the list.  
- For a list with an *odd number* of entries, the median is the middle number. (list must be in order)  
Median = 10.

Mode: 10



## EXAMPLE 2: FIND THE MEAN, MEDIAN, MODE OF THE FOLLOWING LIST

5      6      10      6      10      12

*Before you do anything else, put the list in order!*

5      6      6      10      10      12

Mean:  $\frac{5 + 6 + 6 + 10 + 10 + 12}{6} = 8.17$

Median: - There are 6 items in the list.  
- For a list with an *even number* of entries, the median is the *mean* of the two middle numbers. (list must be in order)  
Median =  $(6 + 10) / 2 = 8$

Mode: 6 and 10



# WEIGHTED MEAN (P. 156, #3)

*Don't re-copy the question.*

3) Jackie Chan's Neice, Stacey Chan is in our math class. Her marks are as follows:

Sit. Prob. (30%)	Tests (40%)	Quizzes (15%)	Assignments (10%)	Homework (5%)
78	93	85	92	80

What is Stacey Chan's overall term average?

Step 1: Find the total value of all the items. In this case, the total weight: 100%

Step 2: Multiply the score times the weight of each category

$$(30)(78) + (40)(93) + (15)(85) + (10)(92) + (5)(80) = 8655$$

Step 3: Find the mean by dividing your answer from step 2 by the answer in step 1

$$8655 / 100 = 86.55$$

**Her term mark is 86.55**





# MISSING VALUE EXAMPLE

To earn an A in Math, Jacob must get a grade average of at least 90%. His test scores this term were 85, 83, and 92. His final exam counts as *three* test scores in his average. What does he need to get on his final exam to get an A?

Step 1: Find the total weight of all the items. In this case, the total # exams:  $1 + 1 + 1 + 3 = 6$

Step 2: Let "x" = the unknown test value.

Step 3: Multiply the score times the weight of each category, with "x" being the unknown test.

$$\frac{(85)(1) + (83)(1) + (92)(1) + (x)(3)}{6} = 90$$

Step 4: Gather like terms and solve

$$\frac{260 + 3x}{6} = 90$$

$$260 + 3x = 540$$

$$3x = 280$$

$$x = 93.3$$

**Jacob must get 93.3 in order to get an A!**

work: Pages 156 – 157

#1, #6, #7\*, #8

(\* save this until last!)

