

Mathematics 12 AW Apprenticeship and Workplace

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Textbook

This course uses the textbook “MathWorks 12” ISBN 978-0-9865108-1-6
By Pacific Educational Press at 1-877-864-8477. Price is about \$ 85.

Curriculum Outline

| | |
|------------------------------|--|
| Unit 1 Linear Relations | Unit 5 Properties of Geometric Figures |
| Unit 2 Limits to Measurement | Unit 6 Transformations |
| Unit 3 Statistics | Unit 7 Trigonometry |
| Unit 4 Probability and Odds | Unit 8 Owning a Small Business |

Structure

This course is generally designed with the self-paced student in mind. It is based on a mastery system in which the student must obtain an 80% on the tests. Each chapter has two versions in which the student has a chance to reach and or exceed the 80% mastery level.

Evaluation

There are 8 chapter tests which account for 70% of the final mark. There are 3 cumulative tests which account for 30% of the final mark.

Composition

It includes a complete self-paced, mastery-based course which is made up of:

8 Chapters Outlines,

8 Chapter Tests each with an A and a B version (16 tests), Plus (16 tests) Answer Keys

3 Cumulative Tests, Plus (3 Cumulative Tests) Answer Keys,

All Answer Keys have a suggested marking scheme,

All files are put on disk in pdf and MS Word,

A perpetual license for your school.

The entire paper course is placed in a binder along with the disk and shipped as one unit.

Cost: \$ 450.00

Mathematics 12 AW Apprenticeship and Workplace**Record Chart****Name:****Commencement Date:**

| Unit | Topic | Test A | Test B | Average | Date |
|------------------------|--|---------------|---------------|----------------|-------------|
| 1 | Linear Relationships | | | | |
| 2 | Limits to Measurement | | | | |
| Cumulative Test | | | | | |
| 3 | Statistics | | | | |
| 4 | Probability and Odds | | | | |
| Cumulative Test | | | | | |
| 5 | Properties of Geometric Figures | | | | |
| 6 | Transformations | | | | |
| 7 | Trigonometry | | | | |
| Cumulative Test | | | | | |
| 8 | Owning a Small Business | | | | |

Course Evaluation

| Course Evaluation | Total Marks | Out of | Percent | Value | Result |
|-----------------------------|--------------------|---------------|----------------|--------------|---------------|
| Tests (8) | | | | 70% | |
| Cumulative Tests (3) | | | | 30% | |
| Final Mark | | | | | |

Math 12 Apprenticeship and Workplace

Textbook: MathWorks 12 by Pacific Educational Press

Unit 4 Probability and Odds

Goal: The goal of this chapter is to familiarize you with how calculations can help you make predictions in the real world.

Objectives: During this unit you will practice working on probability and odds and you will be exposed to different terms such as: Prototype, Beta test, Experimental probability, Random sample, Theoretical probability, Odds, and Event.

What Needs to be Done:

Unit 4 has 3 sections: 4.1, 4.2 and 4.3 Each section in unit 4 has an accompanied video to enhance your understanding of the section material. There may be more than one video for a section. Use the section-numbered videos below as they correspond in the **Unit Practice Guide** below to help you with your understanding.

Video Selections:

4.1 http://www.youtube.com/watch?v=AY3O_qsSnbE

Simple Probability (13 min)

4.1 <http://www.youtube.com/watch?v=jUBtNBVv42M>

Simple Random Sampling (4 min)

4.2 <http://www.youtube.com/watch?v=yxYReJ1yjuE>

Probability - Theoretical Probability vs Experimental Probability (4 min)

4.3 <http://www.youtube.com/watch?v=D8ziFVluofw>

JCHS Math - Probability and Odds with Shaq (5 min)

Unit 4 Practice Guide: (Check Mark as You Complete)

| ✓ | Page | |
|---|---------|--|
| | 146 | Read over this page |
| | 147 | Write out the two new terms. |
| | 148-149 | Read over “Math on the Job” and “Explore the Math”. Write out the definitions for the 3 new terms. |
| | | Watch video 4.1 Simple Probability |
| | 149-150 | Read over Example 1. |
| | | Watch video 4.1 Simple Random Sampling |
| | 151 | Read over “Mental Math and Estimation”. Did you get .23 probability? |
| | 154-155 | Under “Build your Skills” try # 1, 2, 3, 6, 7, 8, and 9. |
| | 156-157 | Read over “Math on the Job” and “Explore the Math” Watch video 4.2 Probability - Theoretical Probability vs Experimental Probability |
| | 157-159 | Go over Examples 1 and 2. |
| | 162 | Try “Mental Math and Estimation”. Did you get 25 and 0.005? |
| | 162-164 | Under “Build your Skills” try # 1 to 9. |
| | 165 | Read over “The Roots of Math” - weather balloons |
| | 167 | Read over “Math on the Job” and “Explore the Math”. Write out the definition for the new term. |
| | 168 | Go over Examples 1 Watch video 4.3 JCHS Math - Probability and Odds with Shaq |
| | 168-169 | Go over Example 2. |
| | 170 | Try “Mental Math and Estimation”. Did you get 0.09? |
| | 172 | Read over “Puzzle it Out”. Did you get 1: 11? |
| | 172-173 | Under “Build your Skills” try # 1 to 8. |
| | 174 | Read over “Reflect on your Learning”. |
| | 175-177 | Under “Practice your new Skills” try # 1 to 11. |

Since this course is based on the mastery system, you need to reach 80% in the test before you can proceed to the next chapter, so review your problems and when you are ready, ask your instructor for the test.

Math 12 AW Unit 1 Test A: Linear Relations

Name _____ Date _____

45**Marks**

1. Match the descriptions on the bottom with the corresponding letter to the terms on the left.

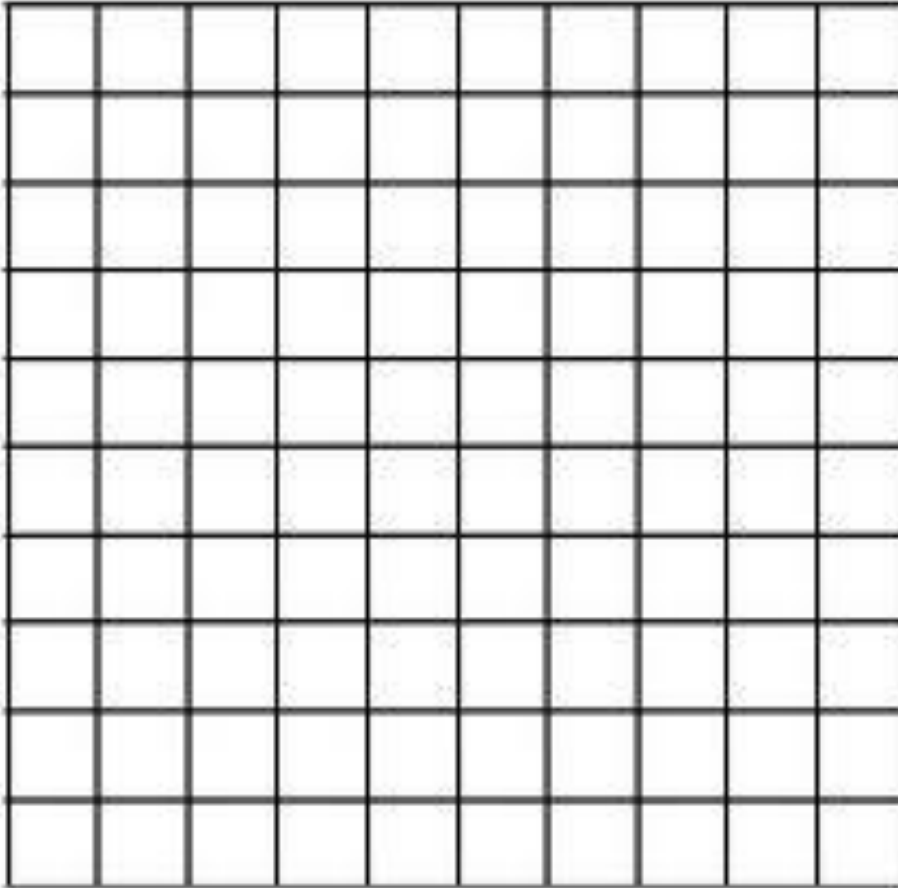
- 6 _____ Slope
_____ Linear relation
_____ Direct linear relation
_____ Independent variable
_____ Dependent variable
_____ Partial linear relation
_____ Y-intercept
_____ Non-linear relation
_____ Scatterplot
_____ Line of best fit
_____ Outlier
_____ Correlation

- A. A relation whose points can result in a curve on a graph.
B. The degree of relatedness between variables.
C. This relationship includes (0,0).
D. A variable whose value depends on the values of other variables.
E. A relationship that does not include (0,0).
F. The point at which the line in a graph intersect the Y-axis.
G. Its purpose is to determine what type of relationship exists between 2 variables (if any).
H. It measures the change in Y over the change in X.
I. A line on a scatterplot to show some trend from the data.
J. A variable whose values are freely selected.
K. A point that lies outside the general trend of the rest of the data.
L. It forms a straight line when you plot values of ordered pairs on a graph.

4. Tom is a salesperson in an electronic store like The Source. He earns a base salary of \$ 1500.00 per month and a commission of 4%. He wants to know how much he will make based on the following sales: \$ 7000.00, \$ 12000.00, \$ 17000.00, \$ 22000.00, \$ 27000.00 and \$ 30000.00.

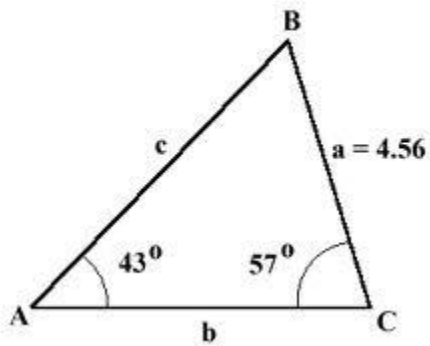
- Set up a table of values of Tom's potential earnings.
- Make a graph with the values in (a).
- Calculate the slope of the graph. What does the slope represent?
- Is the graph a linear relationship? If it is, then what type of linear relationship is it?

7



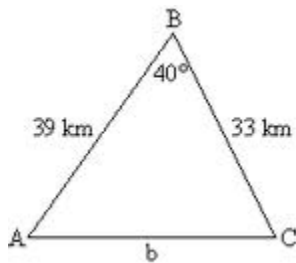
1. Determine the following information for the triangle.
 - (a) Angle at "B" to the nearest whole number.
 - (b) Length of side "c" to two decimal places.
 - (c) Length of side "b" to two decimal places.

5



2. Solve for "b" to the nearest whole number.

2



1. Brent has to choose between Victoria BC and Kelowna BC to set up his Triathlon Shop.
He has studied the demographics and found that Victoria with a population of 330 000 has a sporting factor of 21.2% while Kelowna’s population of 164 000 has a sporting factor of 47.8%. His research reveals that 10% of the sporting factor population will purchase triathlon equipment.
(a) What is the customer base at both locations?

4



- (b) If the summer population of both cities increases by 25%, what is the customer base for both cities?

2. George has just graduated from high school and is looking for full time employment so that he can save enough for college. He lives at home but pays a small amount of rent. He finds 2 part time jobs and does odd jobs for neighbours. George found the following after his first month:
- | | | |
|------------------------------|-----------------------|-----------------------------|
| Job at McDonalds \$200.00 | Job at Rona \$ 235.00 | Grass-cutting \$ 120.00 |
| Painting \$75.00 | Yard work \$65.00 | Transportation cost \$25.00 |
| Motorcycle insurance \$75.00 | Gas \$25.00 | Food \$65.00 |
| Rent \$50.00 | Cell Phone \$25.00 | Entertainment \$80.00 |

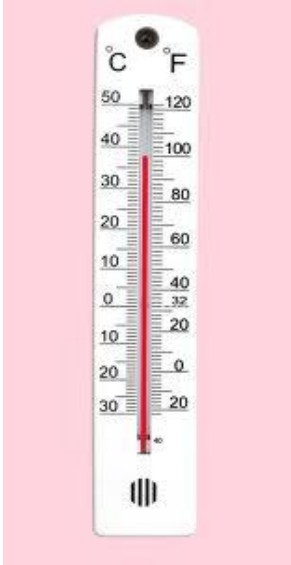
4

Fill in the following chart for his month income and expenses and identify each as regular or variable.

| Income Source | \$ | Regular or Variable | Expense Source | \$ | Regular or Variable |
|---------------|----|---------------------|----------------|----|---------------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| TOTAL | | | TOTAL | | |

3. Identify the precision and uncertainty of the following thermometer on the Fahrenheit Scale. Determine the reading as measurement \pm uncertainty.

2



4. Calculate the following operations and state your answer with the correct level of precision and uncertainty.

(a) $(73.2 \text{ cm} \pm 0.1 \text{ cm}) + (32.7 \text{ cm} \pm 0.1 \text{ cm}) =$

(b) $(22.365 \text{ mg} \pm .005 \text{ mg}) + (31.842 \text{ mg} \pm .005 \text{ mg}) =$

2

5. A front line worker for FedEx uses the weight of three boxes in her calculation for the mailing cost. She measures the weight of the boxes as 17.8 kg, 6.3 kg, and 2.6 kg. Determine the total weight of the boxes with the uncertainty?

3

