

Mathematics 10 AW Apprenticeship and Workplace

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Textbook

This course uses the textbook "MathWorks 10" ISBN 978-1-89576-651-6 by Pacific Educational Press at 1-877-864-8477. Price is about \$ 65.

Curriculum Outline

Unit 1 Unit Pricing and Currency Exchange	Unit 2 Earning an Income
Unit 3 Length, Area, and Volume	Unit 4 Mass, Temperature, and Volume
Unit 5 Angles and Parallel Lines	Unit 6 Similarity of Figures
Unit 7 Trigonometry of Right Triangles	

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

Composition

The course is made up of:

7 Chapters Outlines,

7 Chapter Tests each with an A and a B version (14 tests), Plus (14 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. See Ordering

Mathematics 10 AW Apprenticeship and Workplace**Record Chart****Name:****Start Date:**

Unit	Topic	Test A	Test B	Average	Date
1	Unit Pricing and Currency Exchange				
2	Earning an Income				
Cumulative Test 1					
3	Length, Area, and Volume				
4	Mass, Temperature, and Volume				
Cumulative Test 2					
5	Angles and Parallel Lines				
6	Similarity of Figures				
7	Trigonometry of Right Triangles				
Cumulative Test 3					

Course Evaluation

Course Evaluation	Total Marks	Out of	Percent	Value	Result
Tests (7)				70%	
Cumulative Tests (3)				30%	
Final Mark					

Math 10 AW Unit 1 Test A: Unit Pricing & Currency Exchange

Name _____ Date _____

Marks

40

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

- 6
- _____ Proportion
 - _____ Buying rate
 - _____ Currency
 - _____ Unit rate
 - _____ Selling rate
 - _____ Promotion
 - _____ Ratio
 - _____ Unit price
 - _____ Markup
 - _____ Percent
 - _____ Exchange rate
 - _____ Rate

- A. The rate at which a currency exchange sells money to its customers.
- B. The price of one country's currency in terms of another's currency.
- C. The system of money that a country uses.
- D. The rate at which a currency exchange buys money from customers.
- E. An activity that brings awareness to a product or attracts customers.
- F. It is a ratio in which the denominator is 100.
- G. The difference between the amount a seller buys a product and the selling amount.
- H. The rate for one item.
- I. The cost of one item when expressed as a fraction where the denominator is one.
- J. A comparison between two numbers with different units.
- K. A fractional statement of equality between two ratios.
- L. A comparison between two numbers with the same units.

4. Examine Jill's Time Card as follows.

Employee Number: 12345				
Employee Name: Jill Foster				
For Week Ending: 07/February/2013				
Date:	Morning:	Afternoon	Overtime:	Hours:

	IN	OUT	IN	OUT	IN	OUT	REGULAR	OVERTIME
Feb. 1	9:00	12:00	1:00	5:00				
Feb. 2	8:55	11:55	1:05	5:04				
Feb. 3	8:57	12:02	1:01	5:02	7:01	9:02		
Feb. 4	9:02	12:01	12:57	4:50	6:59	10:01		
Feb. 5	8:56	11:59	12:58	5:01	7:02	10:32		

6

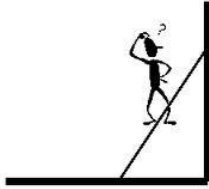
- Fill in the regular and overtime hours in the chart. Round off the minutes to the nearest hour in the morning, afternoon, and overtime sessions. Only a 15 minute difference in any one session will be adjusted.
- Determine the regular hours pay if Jill makes \$15.75 per hour.
- Calculate the overtime pay if it is time and a half for the first two hours per session and double time thereafter.
- What is her gross pay?

5. Hardeep works at Futureshop and earns a base salary of \$26 000.00 and a 9% commission on all sales. If Hardeep aims to make a total of \$40 000.00 per year, how much merchandise must he sell?

3



8. Will a 24' ladder be able to reach a window which is 7 metres above the ground?



2

9. Betty wants a ceramic tile backsplash in her kitchen. The total length of the backsplash is 8 feet and the width are 3 feet.
- (a) If she uses $5\frac{1}{2}$ tiles and allows for a $\frac{1}{2}$ spacing, how many tiles will she need?
- (b) If the cost of each tile is \$4.75, how much will the cost be before taxes?

4



10. A can of coca-cola has a diameter of 6.6 cm and a height of 12.1 cm.
- (a) How much aluminum is needed to one decimal place to make a case of 24 cans?
- (b) Convert your answer to m^2 to two decimal places.

4



1. A farmer figures to make around 10 tons/acre of alfalfa hay. If a bale size is 80 lbs, how many bales would he expect to get per acre?

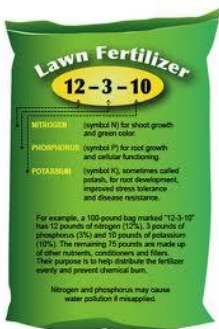


2

2. Choose the correct item to go with each measure of mass. Circle your answer.
- (a) One gram is about (1) A baseball (2) A dime (3) A textbook
- (b) One kilogram is about (1) A cell phone (2) A textbook (3) A deck of cards
- (c) One tonne is about (1) A tractor (2) A sofa (3) A refrigerator
- (d) One milligram is about (1) A short hair (2) A sheet of paper (3) A pen

2

3. A new home owner wants to fertilize the lawn. She buys a 100 kg bag of 12% - 3% - 10% ratio of Nitrogen: Phosphorous: Potassium.
- (a) How many kilograms are there of each of the three nutrients?
- (b) How many pounds are there for each of the nutrients?



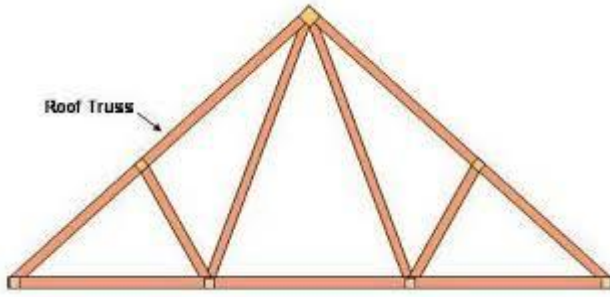
3

4. In July 2012 near Chilliwack BC, a sturgeon at 12-feet-four-inches long and a weight of 1,100 pounds was caught (and later released). What is the weight in kilograms?



1

5. Label all the angles found in this symmetrical roof truss diagram.



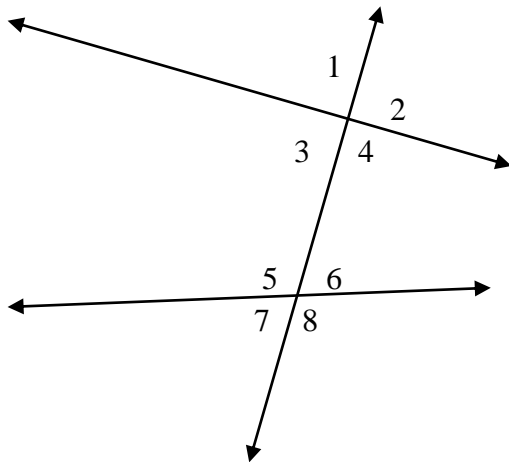
2

6. The following lines show non-parallel lines intersected by a transversal. Identify the angles listed below as

7

vertically opposite,
corresponding,
complementary,
supplementary,
alternate interior,
alternate exterior,
interior on the same side of the transversal,
exterior angles on the same side of the transversal.

Note that some terms may be used more than once or some terms may not be used at all.



- (a) Angles 3 and 2 _____
 (b) Angles 3 and 6 _____
 (c) Angles 1 and 8 _____
 (d) Angles 8 and 2 _____
 (e) Angles 1 and 2 _____
 (f) Angles 5 and 4 _____
 (g) Angles 1 and 5 _____

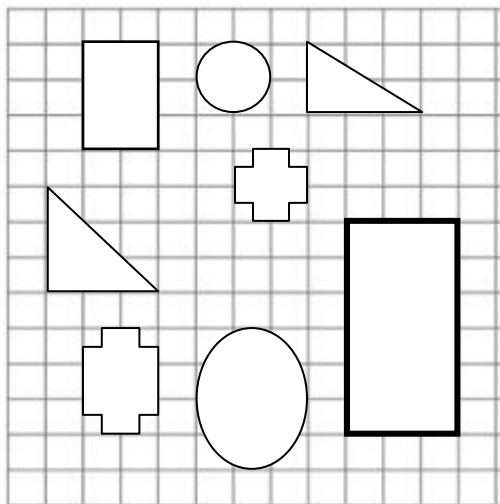
1. A model of a BMW X6 was made and then enlarged. Determine if the enlargement produced similar figures. The model was 49.5 cm in width and 122 cm in length. The scaled up version was 198.0 cm wide and 475.8 in lengths.

2



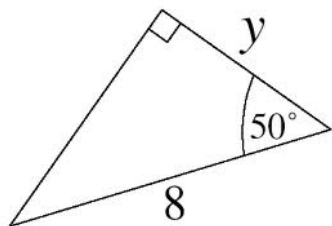
1. The diagram below has 4 different figures. State which ones are similar. Note that all, some, or none may be similar.

2



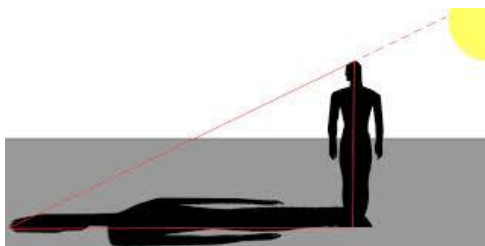
5. Solve the value of Y to two decimal places if the other side is 8 metres in the diagram.

2



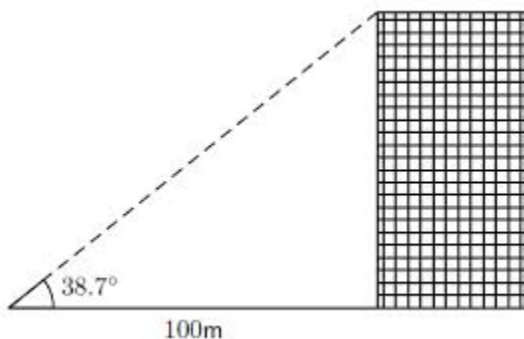
6. In the following diagram the person casts a shadow that forms an angle of 30° at the pavement. The distance from the head of the person to the head of the shadow is 13 feet. What is the length of the shadow to two decimal places?

2



7. At an angle of elevation of 38.7° a person is looking at the top of the building. The building is 100 metres away. What is the height of the building to one decimal place?

2



Math 10 Apprenticeship and Workplace

Textbook: MathWorks 10 by Pacific Educational Press

Unit 3 Length, Area, and Volume

Goal: The goal of this chapter is to familiarize you with every day measurements in length, area, and volume.

Objectives: During this unit you will use your understanding of fractions, decimals, ratios, and estimation as they apply to every day math. You will also work in both measurements systems – SI and Imperial. In addition, you will make conversions between these two systems of measurement. You will be exposed to different terms such as: Base unit, Yard, Capacity, Volume, Conversion factor, SI, Foot, Surface area, Geometric net, Referent, Imperial system, Mile, and Inch.

What Needs to be Done:

Unit 3 has 4 sections: 3.1, 3.2, 3.3, and 3.4. Each section in unit 3 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:

3.1 http://www.youtube.com/watch?v=DQPO_q59xyw

Metric & Standard Measurement Systems (5:04)

3.2 <http://www.youtube.com/watch?v=XKCZn5MLKvk>

How to Convert Units - Unit Conversion Made Easy (4:00).

3.3 <http://www.youtube.com/watch?v=Pcjnz26pnwY>

How to find the Surface Area of a Rectangular Prism (3:52).

3.3 <http://www.youtube.com/watch?v=sPqIqGeF4fc>
how to find the surface area of a cylinder (4:34).

3.4 <http://www.youtube.com/watch?v=8fWeUNPlZng>
Volume and Capacity (2:52).

Unit 3 Practice Guide: (Check Mark as You Complete)

✓ Page	
	92 Read over “Goals” and “Key Terms”.
	94-95 Read over “Math On The Job” and “Explore The Math”. Define the 3 new terms. Watch video “Metric & Standard Measurement Systems” (5:04).
	97-101 Go over Example 1- 3.
	102 Try “MentalMath and Estimation”. The answer is found at the end of the Practice Guide.
	102-103 Under “Build Your Skills” do # 1-9.
	104 Read over “The Roots of Math”.
	106 Read over “Math On The Job” and “Explore The Math”. Watch video “How to Convert Units - Unit Conversion Made Easy” (4:00).
	108-109 Go over Examples 1 and 2.
	111 Try “Mental Math and Estimation”. The answer is found at the end of the Practice Guide.
	111-113 Under “Build Your Skills” do # 1-8.
	115-116 Read over “Math On The Job” and “Explore the Math”. Define the 3 new terms. Watch video “How to find the Surface Area of a Rectangular Prism (3:52).
	118-119 Go over Example 1. Watch video “how to find the surface area of a cylinder “(4:34).
	119 Go over Example 2.
	120 Try “Mental Math and Estimation”. The answer is found at the end of the Practice Guide.
	121-122 Under “Build Your Skills” do # 1-7.
	124-125 Read over “Math On The Job” and “Explore The Math”. Define the new term. Watch video “Volume and Capacity” (2:52).
	127-130 Go over Examples 1-3.

131	Try “Puzzle It Out”. The answer is found at the end of the Practice Guide.
132	Under “Build Your Skills” do # 1-7.
133	Read “Reflect On Your Learning”.
134-135	Under “Practice Your New Skills” try # 1, 3, 5, 7, 9.

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.

Answers

Page

102 186 feet

111 about 172 miles

120 $24/6 = 4 \text{ ft}^2$ per face. Length x Width = 4 but Length = Width (definition of a cube) so Length x Length = L^2 . Therefore, $L^2 = 4$ and $L = 2$.

131 Fill the 3 units container and pour into the 5 units container. Fill the 3 units container again and fill up the 5 units container. There is one unit of water left in the 3 units container. Now, empty the 5 units container and pour the one unit of water from the 3 units container into the 5 units container. There is now one unit of water in the 5 units container. Fill the 3 units container and pour into the 5 units container. There are now 4 units of water in the 5 units container.