ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 2.3

Student's Questions and Comments

FOR STUDENT USE ONLY

Student Name:

_____

FOR ADLC USE ONLY

Assigned to

_____

Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Possible Marks	Percent
2.3 Practice – IV	**I have ____ /8 and ____ %.**		
Lesson 2.3 Assignment		14	

Teacher's Comments:

_____

Teacher's Signature

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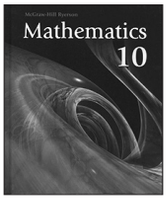


Mathematics 10

ADLC Alberta Distance Learning Centre

Practice Assessment

The *Practice* section provides practice exercise questions and allows you to self-reflect on your conceptual understanding of the *Lesson* skills. You will mark your *Practice* work in each *Workbook* according to the following rubric.

Category	Strategy and Procedures	Response to Questions
	I have…	*I have…*
4	• used efficient and effective strategies to solve the problem(s)	• provided detailed explanations and followed directions appropriately to complete all questions
3	• used effective strategies to solve the problem(s)	• provided clear explanations and followed directions adequately to complete most questions
2	• used effective strategies inconsistently to solve the problem(s)	• provided incomplete explanations and followed some directions to complete a few questions
1	• used ineffective strategies to solve the problem(s)	• provided incomplete explanations and does not followed directions to complete some questions

Complete *Practice* exercises using your best work, showing all relevant steps needed to arrive at your solution. Refer to the *Module* to review lesson instructions. Contact your teacher for assistance or clarification as needed, or to investigate the topic further.

Check and correct your work using the solutions provided in *Appendix* in the *Module*.

Practice is worth 8 marks.

After you have assessed your work, reflect on your understanding of the concepts in the table provided at the end of each *Practice* section.

Lesson 2.3: Composite Objects Applications

Complete the *Practice* below. When you have completed all the questions for *Lesson 2.3 Practice – IV* with your best work, mark your work by first comparing your answers to the solutions provided in the *Appendix*. Then, apply the rubric found at the beginning of the *Workbook*.

Practice – IV

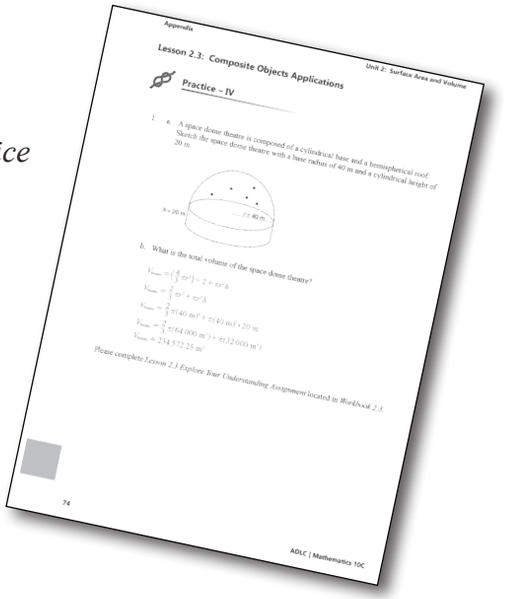
1. a. A space dome theatre is composed of a cylindrical base and a hemispherical roof. Sketch the space dome theatre with a base radius of 40 m and a cylindrical height of 20 m.

   b. What is the total volume of the space dome theatre?

Mark your work for *Lesson 2.3 Practice – IV* using the solutions provided in the *Appendix*. Then, apply the rubric found at the beginning of the *Workbook*.

Transfer your self-assessed mark to the front cover of the *Workbook*.

My self-assessed mark on *Lesson 2.3 Practice – IV* is _____.


Appendix

Unit 2: Surface Area and Volume

Lesson 2.3: Composite Objects Applications

Practice – IV

1. a. A space dome theatre is composed of a cylindrical base and a hemispherical roof. Sketch the space dome theatre with a base radius of 40 m and a cylindrical height of 20 m.

h = 20 m

r = 40 m

b. What is the total volume of the space dome theatre?

$V_{dome} = \left(\frac{2}{3}\pi r^3\right) + \pi r^2 h$

$V_{dome} = \frac{2}{3}\pi r^3 + \pi r^2 h$

$V_{dome} = \frac{2}{3}\pi(40\text{ m})^3 + \pi(40\text{ m})^2 \cdot 20\text{ m}$

$V_{dome} = \frac{2}{3}\pi(64\,000\text{ m}^3) + \pi(32\,000\text{ m}^3)$

$V_{dome} \approx 234\,572.25\text{ m}^3$

Please complete *Lesson 2.3 Explore Your Understanding Assignment* located in *Workbook 2.3*.

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Reflect on your understanding of the concepts addressed in the *Practice* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			

You may proceed to *Explore Your Understanding Assignment* on the next page of this *Workbook*.

Note: Before you complete *Explore Your Understanding*, you may review your skills and get more practice by completing the following problems in *Mathematics 10*.

- Page 74, #5, 6, 14, 15, and 16
- Page 86, #3, 4, 6, 7, 11, 12, and 14

Check your work in *Enhance Your Understanding*.


Unit 2: Surface Area and Volume

Lesson 2.3: Composite Objects Applications

Appendix

Refer to pages 74 and 86 in *Mathematics 10* for more practice.

- Page 74, #5, 6, 14, 15, and 16
- Page 86, #3, 4, 6, 7, 11, 12, 14

Question 5, page 75

The surface area of the composite object is equal to the surface areas of the pyramid and the sphere.

For the pyramid:

$SA_{pyramid} = lw + 2\left(\frac{1}{2}lh_1\right) + \frac{1}{2}wh_2$

$SA_{pyramid} = (15\text{ cm} \cdot 12\text{ cm}) + 2\left\{\frac{1}{2} \cdot 15\text{ cm} \cdot 12.75\text{ cm}\right\} + \left\{\frac{1}{2} \cdot 12\text{ cm} \cdot 13.5\text{ cm}\right\}$

$SA_{pyramid} = 533.25\text{ cm}^2$

For the sphere:

$SA_{sphere} = 4\pi r^2$

$SA_{sphere} = 4\pi(4\text{ cm})^2$

$SA_{sphere} = 201.061...\text{ cm}^2$

$SA_{composite\ object} = SA_{pyramid} + SA_{sphere}$

$= 533.25\text{ cm}^2 + 201.061...\text{ cm}^2$

$= 734.311...\text{ cm}^2$

The surface area of the composite object is approximately 734.3 cm^2.

Question 6, page 75

There are no errors in Austin's calculations. It is better to not round until the last step, in this case it only makes a tiny difference.

For four cylinders:

$SA = 4(16.5\pi)$

$SA = 207.345...\text{ ft}^2$

The surface area is 207.35 ft^2, to the nearest hundredth.

He does not need to paint the bottom ends of the pillars, as they will be on the ground.

In this case:

$SA = 4(\pi r^2 + \pi dh)$

$SA = 4(\pi(0.5\text{ ft})^2 + (\pi \cdot 1\text{ ft} \cdot 16\text{ ft}))$

$SA = 204.203...\text{ ft}^2$

The surface area you would paint is approximately 204.20 ft^2.

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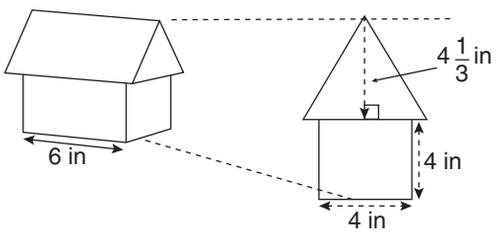
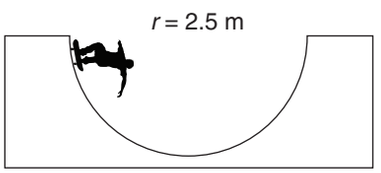
Lesson 2.3: Composite Objects Applications

Explore Your Understanding Assignment

(5) 1. Jimmy made a model of a house in construction class. The block of wood for the base measures 6 inches by 4 inches, and is 4 inches tall. He used a triangular prism for the roof, whose rectangular face hangs over the base by half an inch on all sides and is $4\frac{1}{3}$ inches in height. Calculate the total volume of wood used for the model.



2. Skateboarders use half pipes for doing tricks. A half-pipe is a half cylinder.



(2) a. Explain in your own words how you could manipulate the surface area formula for a cylinder to calculate the curved surface area of the half pipe.

(3) b. To the nearest square metre, what is the curved surface area of the half pipe if it is 7 m long?

3. Explain when each of the following formula adjustments might prove useful.

(2) a. Dividing the volume formula for a sphere by two.

(2) b. Dividing the volume formula for a rectangular prism by three.

/14