



Date:

SCHEDULE

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Download Handout #1 From Website
7.4LastNameSurfaceArea&VolumeCone.pdf

Learning Goals:

By the end of this lesson, we will explore surface area and the volume of a cone and apply our knowledge.



Go to Problems With Homework Form:

Sec: 7.3, *DIGITAL TEXT*, Q: 1a, 2a, 3, 4, 5, 11



Minds On:

More EQAO Prep...



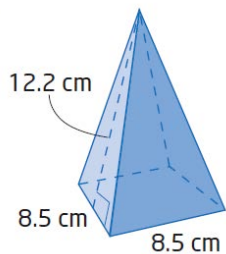
Unit 7: Measurement Relationships

Sec. 7.4 (8.4) - Surface Area & Volume of Cones

COUNTDOWN TO FREEDOM!

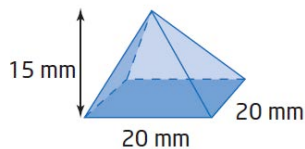
1. Determine the surface area of each object.

a)



2. Determine the volume of each object. Round to the nearest cubic unit, when necessary.

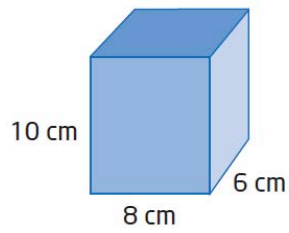
a)



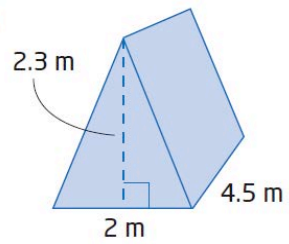


4. Determine the volume of each object.

a)

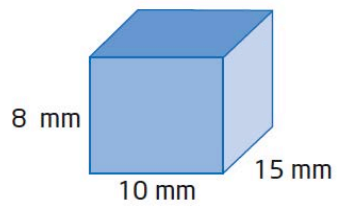


b)

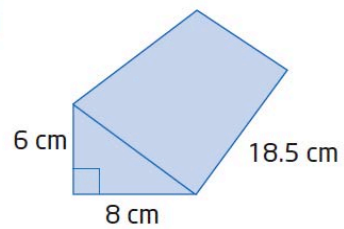


3. Determine the surface area of each object.

a)



b)

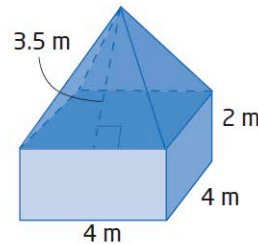




5. A rectangular prism has length 3 m, width 2 m, and height 4 m.
- Determine the surface area of the prism.
 - Determine the volume of the prism.

11. Adam has built a garden shed in the shape shown.

- Calculate the volume of the shed, to the nearest cubic metre.
- Adam plans to paint the outside of the shed, including the roof but not the floor. One can of paint covers 4 m^2 . How many cans of paint will Adam need?
- If one can of paint costs \$16.95, what is the total cost, including 7% GST and 8% PST?





More EQAO Prep...

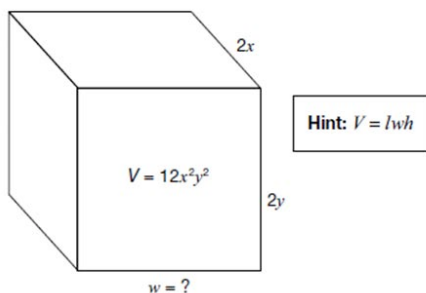
MIND BUSTER



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1

A box with a volume of $12x^2y^2$ is shown below.



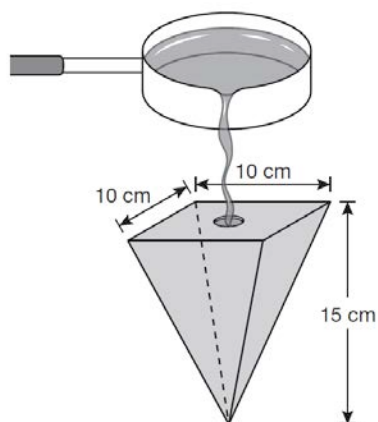
What is the width of the box?

- a $2xy$
- b $3xy$
- c $4x^3y^3$
- d $8x^3y^3$

From June 2008

2

The mould shown below is used to make a candle in the shape of a square-based pyramid.



What is the volume of the mould?

- a 1500 cm^3
- b 500 cm^3
- c 400 cm^3
- d 35 cm^3



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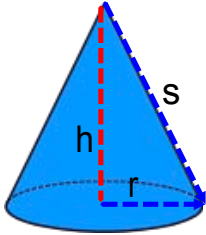


Sec. 7.4 (8.4-8.5) - Surface Area & Volume of Cones

LESSON

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Surface Area of a Cone



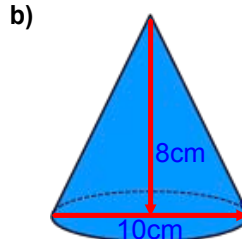
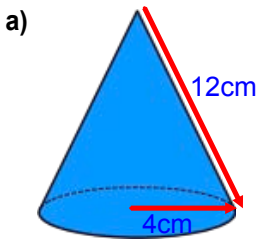
s = slant height

r = radius

<p>SURFACE AREA OF CONE =</p>	<p style="color: red;">Area of Curved Surface (Lateral Area)</p>	<p>+</p>	<p style="color: red;">Area of Base</p>
<p>SURFACE AREA OF CONE =</p>	<p>+</p>	<p>=</p>	<p>+</p>

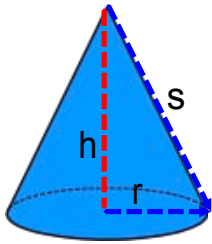
When all you are given is the **radius** and **height**, use **Pythagorean Theorem** to find the slant height!

Task #1: Calculate the Surface Area of the following Cones:





Volume of a Cone



s = slant height
 r = radius
 h = height

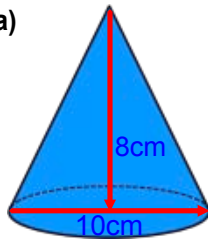
- Since a **cone** is a special type of **pyramid**, we can use the same **volume formula**:

$$\text{Volume} = \frac{\text{Area of Base} \times \text{Height}}{3}$$

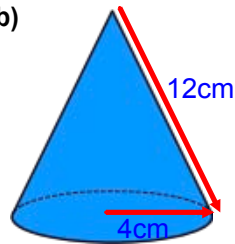
- When all you are given is the **radius** and **slant height**, use **Pythagorean Theorem** to find the **height**!

Task #2: Calculate the Volume of the following Cones:

a)



b)





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4. One cone has base radius 4 cm and height 6 cm. Another cone has a base radius 6 cm and height 4 cm.

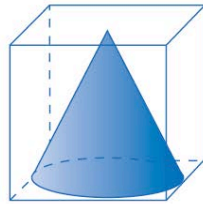
- a) Do the cones have the same slant height?
- b) Do the cones have the same surface area? If not, predict which cone has the greater surface area. Explain your reasoning.
- c) Determine the surface area of each cone to check your prediction. Were you correct?

7. The radius of a cone is doubled. Does this double the surface area? Justify your answer.



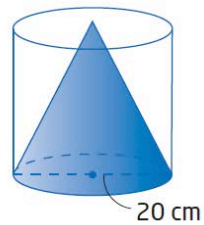


8. A cube-shaped box has sides 10 cm in length.



- a) What are the dimensions of the largest cone that fits inside this box?
- b) What is the surface area of this cone, to the nearest square centimetre?

9. A cone just fits inside a cylinder. The volume of the cylinder is 9425 cm^3 . What is the surface area of this cone, to the nearest square centimetre?

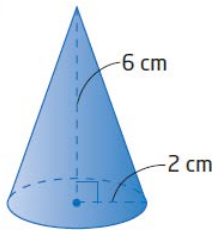




Page 454-456 #1a, 2a, 3, 4, 8

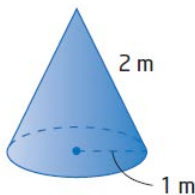
1. Determine the volume of each cone. Round to the nearest cubic unit.

a)

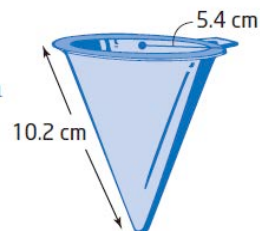


2. Determine the volume of each cone. Round to the nearest cubic unit.

a)



3. Wesley uses a cone-shaped funnel to put oil in a car engine. The funnel has a radius of 5.4 cm and a slant height of 10.2 cm. How much oil can the funnel hold, to the nearest tenth of a cubic centimetre?





4. A cone-shaped paper cup has a volume of 67 cm^3 and a diameter of 6 cm. What is the height of the paper cup, to the nearest tenth of a centimetre?

8. A cone-shaped storage unit at a highway maintenance depot holds 4000 m^3 of sand. The unit has a base radius of 15 m.
- a) Estimate the height of the storage unit.
 - b) Calculate the height.
 - c) How close was your estimate?



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