



## Concept: Ratios for Area and Volume

Name: \_\_\_\_\_

### COMPUTER COMPONENT

**Instructions:** Select the computer program *Understanding Measurement and Geometry* (Neufeld)  
Follow the instructions to the Main Menu.  
Select *Ratios for Area and Volume* from the Main Menu.



Work through all sections of this topic **in order**:

- *In This Topic*
- *Ratios for Area and Volume*
- *Practice Questions*


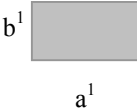
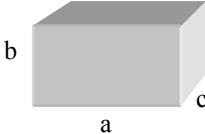
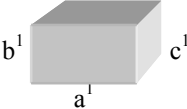


As you work through the computer exercises, make your notes on this page in the **SUMMARY** section.

When you reach the end of the section *Practice Questions* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

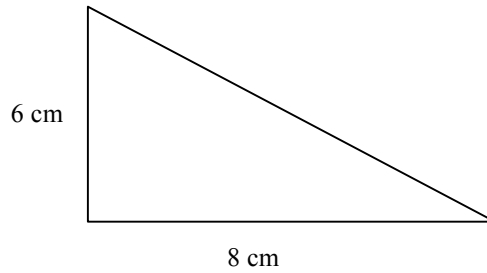
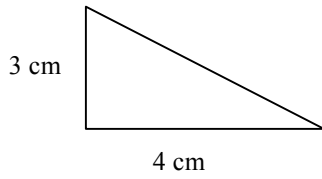
### SUMMARY

1. The Patterns / the Rules: Record your observations for the on-computer exercises that you have just completed, in the spaces below.

| AREA  | VOLUME   |
|---|--|
|   |   |
| Notes:  | Notes:   |

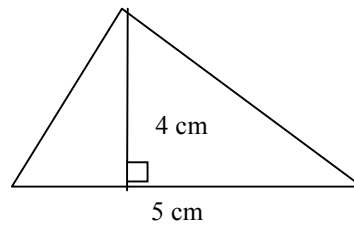
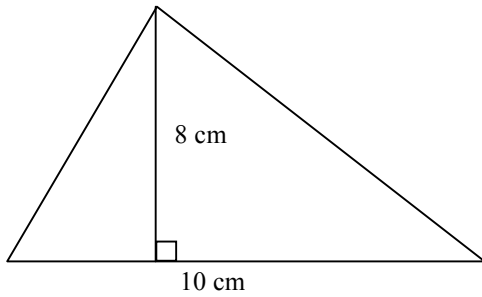
**OFF COMPUTER EXERCISES:**

1. Find the ratios of base : base, height : height, area : area for this pair of similar triangles:



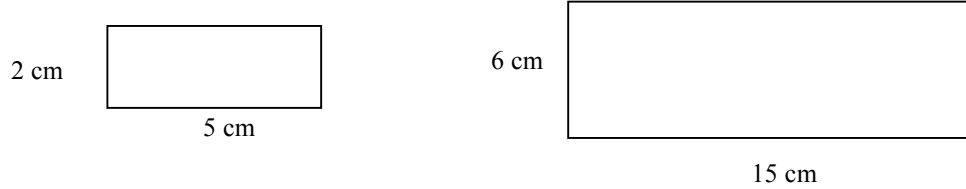
| Shape | Base | Height | Area |
|-------|------|--------|------|
|       |      |        |      |

2. Find the ratios of base : base, height : height, area : area for this pair of similar triangles:



| Shape | Base | Height | Area |
|-------|------|--------|------|
|       |      |        |      |

3. Find the ratios of length : length, width : width, area : area for this pair of similar rectangles:



| Shape | Length | Width | Area |
|-------|--------|-------|------|
|       |        |       |      |

4. For this next problem, you'll really have to use your mathematical wizardry!

In this case we'll take a basic shape (inverted 'T') and examine it in 2D space and then in 3D space. Next we'll double the dimension of the polygon and then the polyhedron. Our investigation should include the following 3 parts and should provide proofs for our conclusions:

- the total area of shape A to  $A^1$
- the total surface area of B to  $B^1$
- the total volume of B to  $B^1$

|  |  |
|--|--|
| <p><b>A</b></p>  | <p><b>A<sup>1</sup></b></p>  |
| <p><b>B</b> Same face dimensions as above + 2 units deep</p> | <p><b>B<sup>1</sup></b> Same face dimensions as above + 4 units deep</p> |

For this investigation, 'chunk' the problem; break the shapes into manageable parts.

| Shape | Area (Complete your work here) |
|-------|--------------------------------|
|       |                                |

| Shape | Surface Area | Volume |
|-------|--------------|--------|
|       |              |        |

**Conclusion:**

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