|  |  |  |
| --- | --- | --- |
| Communication in all questions must include:   |  |  | | --- | --- | | * Enough steps shown to clearly demonstrate thinking * Solutions that are neat and easy to follow * Proper use of mathematical symbols * Equal signs aligned | * Units used as required * Concluding statements for all word problems * Fractions reduced to lowest terms * Correct rounding. | |

**2D Geometry**

1. Find the area and perimeter of each shape:

|  |
| --- |
| http://s2.hubimg.com/u/6844119_f260.jpg |
| http://www.mathsteacher.com.au/year10/ch14_measurement/11_composite_figures/Image5343.gif |
|  |
| http://www.mathsteacher.com.au/year8/ch12_area/09_comp/Image15583.gif |

**3D Geometry:** Find the surface area and volume of each figure:

|  |
| --- |
| http://images.tutorvista.com/cms/images/67/volume-of-cylinder-example.png |
| Image |
| Image |
|  |
| https://dr282zn36sxxg.cloudfront.net/datastreams/f-d%3A785d99ca4718a564e6a6afac3b92f5c4616e7b7c1442e675ce93930f%2BIMAGE%2BIMAGE.1  \*Slant = 57 ft. long |

1. The three rectangles shown all have the same perimeter. Which has the largest area? Explain in words how you made your choice.
2. A rectangular room needs to have an area of 60 m2. What are the dimensions of the room with a minimum perimeter, and what is the perimeter?
3. You need to build a rectangular enclosure in your backyard. You buy some prebuilt sections of fencing which are each 0.25m long. You buy a total of 40m of fencing. Determine the dimensions (length and width) which will maximize the area of your enclosure
4. 36 m of rope are available to create a rectangular swimming area, using the beach as one side. What is the maximum area that can be produced?
5. A marine biologist is collecting data. She has 100 m of rope with buoys to outline a rectangular or circular research area on the surface of the water. Which figure will enclose a greater area? Justify your answer by showing all calculations.
6. A rectangular-based prism must have a surface area of 96 cm2. What are the dimensions of the prism that produce the maximum volume, and what is the volume?
7. A rectangular-based prism has a volume of 50 in3. Determine the minimum surface area.