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| Year  8 | | *Volume* | Non Calculator  Section |
| **Skills and Knowledge Assessed:**   * Draw different views of prisms and solids formed from combinations of prisms (ACMMG161) * Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195) * Develop the formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume (ACMMG198) * Calculate the surface area and volume of cylinders and solve related problems (ACMMG217) Extension | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *Answer all questions in the spaces provided on this test paper by:*  *Writing the answer in the box provided.*  *or*  *Shading in the bubble for the correct answer from the four choices provided.*  *Show any working out on the test paper. Calculators are* ***not*** *allowed.* | | | |
|  | For the solid shown, which diagram below correctly shows its front view (elevation) and top view (plan). | | |
|  | Draw a three dimensional sketch of the prism whose net is shown below. | | |
|  | What name describes the solid shown?  Rectangular Prism.  Rectangular Pyramid.  Triangular Prism.  Triangular Pyramid. | | |
|  | What is the volume of the cube shown?  Volume = cm3 | | |
|  | What is the volume of the rectangular prism?  Volume = cm3 | | |
|  | Jimmy buys the glass aquarium shown and fills it to within 10 cm of the top.  How many litres of water are needed?  (1000 cm3 holds one litre.)  70 litres.  80 litres.  140 litres.  160 litres. | | |
|  | Josie buys a pizza in the box shown.  What is the volume of the box?  Volume = cm3 | | |
|  | What is the volume of the prism whose net is shown here?    Volume = cm3 | | |
|  | What is the volume of the triangular prism shown?    900 cm3  4 500 cm3  9 000 cm3  18 000 cm3 | | |
|  | Each of these hexagonal boxes has a depth of 12 cm and the hexagonal top of each has an area of 90 cm2.  What is the total volume of all the boxes shown?  Volume = cm3 | | |
|  | A dog kennel has the dimensions shown.  Calculate the volume of the kennel in cm3.  Volume = cm3. | | |
|  | A storage cabinet is in the shape shown.  What volume of storage does the cabinet provide?  Volume of Storage = m3. | | |
|  | A gift box is in the shape of an octagonal prism that has 20 cm edges, measures 48 cm across and is 20 cm deep.    The octagon can be thought of as 8 isosceles triangles as shown.  Find the volume of the box.  Volume = cm3 | | |
|  | Find the volume of the cylinder in terms of  Volume = cm3 | | |
|  | A letter box is a prism with its cross section shown below.  What is the volume of the lunch box? | | |

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| Year  8 | | *Volume* | Calculator Allowed  Short Answer  Section |
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| *Answer all questions in the spaces provided on this test paper by:*  *Writing the answer in the box provided.*  *or*  *Shading in the bubble for the correct answer from the four choices provided.*  *Show any working out on the test paper. Calculators are allowed.* | | | |
|  | Which solid below is **not** a prism? | | |
|  | Which of the solids shown would have the top and side view below? | | |
|  | The cube shown has a volume of 42.875 cm3.  What is the length of its edge?  Length = cm. | | |
|  | What is the volume of the rectangular prism?    25.0 cm  50.0 cm  100.0 cm  125.0 cm | | |
|  | What is the volume of the prism shown in cm3?  105 cm3  1 050 cm3  10 500 cm3  105 000 cm3 | | |
|  | A prism has a volume of 6.5 m3. What is its volume in cm3?  650 cm3  65 000 cm3 650 000 cm3 6 500 000 cm3 | | |
|  | Each of the cubes used in this design measure 2 cm on each side.    What is the total volume of the design?  13 cm3  26 cm3  52 cm3  104 cm3 | | |
|  | Which calculation could be used to find the volume of the triangular prism shown? | | |
|  | Find the volume of the triangular prism shown.  Volume = cm3 | | |
|  | The area of the pentagonal base of this prism is 64.5 cm2.  What is the volume of the prism?  Volume = cm3 | | |
|  | The water tank is designed to go under a deck and has the dimensions shown below.  Using the relationship: 1 cubic metre holds 1 kilolitre; find the capacity of the tank in litres.    Capacity = litres. | | |
|  | Choc Delites are sold in a packet which is a triangular prism.  What is the volume of the packet shown?  35 cm3  37.5 cm3  52.5 cm3  131.25 cm3 | | |
|  | What is the volume of the cylinder to the nearest cm3?  Volume = cm3. | | |
|  | A storage hut is in the shape of a half cylinder.  The diameter of the semicircle is 8 metres and the length of the hut is 16 metres.  What volume does the hut hold?  Volume = m3 | | |
|  | The petroleum storage tanks are cylinders which have a diameter of 80 metres and a height of 40 metres.  The top curved section is only used to contain vapour.  A cubic metre holds one kilolitre.  How many megalitres of petroleum would the three tanks hold?  Capacity of three tanks = Megalitres | | |

Volume

ANSWERS

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| Non Calculator Section ( 1 mark each) | |
|  | | For the solid shown, which diagram below correctly shows its front view (elevation) and top view (plan). | |
|  | | Draw a three dimensional sketch of the prism whose net is shown below. | |
|  | | What name describes the solid shown?  Rectangular Prism.  Rectangular Pyramid.  Triangular Prism.  Triangular Pyramid. | |
|  | | What is the volume of the cube shown?    927  Volume = cm3 | |
|  | | What is the volume of the rectangular prism?  216  Volume = cm3 | |
|  | | Jimmy buys the glass aquarium shown and fills it to within 10 cm of the top.  How many litres of water are needed?  (1000 cm3 holds one litre.)  70 litres.  80 litres.  140 litres.  160 litres. | |
|  | | Josie buys a pizza in the box shown.  What is the volume of the box?    3 800  Volume = cm3 | |
|  | | What is the volume of the prism whose net is shown here?      Volume = 96 cm3 | |
|  | | What is the volume of the triangular prism shown?    900 cm3  4 500 cm3  9 000 cm3  18 000 cm3 | |
|  | | Each of these hexagonal boxes has a depth of 12 cm and the hexagonal top of each has an area of 90 cm2.  What is the total volume of all the boxes shown?  3240  Volume = cm3 | |
|  | | A dog kennel has the dimensions shown.  Calculate the volume of the kennel in cm3.    360 000  Volume = cm3. | |
|  | | A storage cabinet is in the shape shown.  What volume of storage does the cabinet provide?    5.04  Volume of Storage = m3. | |
|  | | A gift box is in the shape of an octagonal prism that has 20 cm edges, measures 48 cm across and is 15 cm deep.  The octagon can be thought of as 8 isosceles triangles as shown.  Find the volume of the box.    28 800  Volume = cm3 | |
|  | | Find the volume of the cylinder in terms of      Volume = cm3 | |
|  | | A letter box is a prism with its cross section shown below.  What is the volume of the lunch box? | |

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| Calculator Allowed Short Answer Section ( 1 mark each) |

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|  | Which solid below is **not** a prism? |
|  | Which of the solids shown would have the top and side view below? |
|  | The cube shown has a volume of 42.875 cm3.  What is the length of its edges?    3.5  Length = cm. |
|  | What is the volume of the rectangular prism?    25.0 cm    50.0 cm  100.0 cm  125.0 cm |
|  | What is the volume of the prism shown in cm3?  105 cm3    1 050 cm3  10 500 cm3  105 000 cm3 |
|  | A prism has a volume of 6.5 m3. What is its volume in cm3?    650 cm3  65 000 cm3 650 000 cm3 6 500 000 cm3 |
|  | Each of the cubes used in this design measure 2 cm on each side.    What is the total volume of the design?    13 cm3  26 cm3  52 cm3  104 cm3 |
|  | Which calculation could be used to find the volume of the triangular prism shown? |
|  | Find the volume of the triangular prism shown.    9 000  Volume = cm3 |
|  | The area of the pentagonal base of this prism is 64.5 cm2.  What is the volume of the prism?    1 032  Volume = cm3 |
|  | The water tank is designed to go under a deck and has the dimensions shown below.  Using the relationship: 1 cubic metre holds 1 kilolitre; find the capacity of the tank in litres.      11 500  Capacity = litres. |
|  | Choc Delites are sold in a packet which is a triangular prism.  What is the volume of the packet shown?  35 cm3  37.5 cm3    52.5 cm3  131.25 cm3 |
|  | What is the volume of the cylinder to the nearest cm3?  2651  Volume = cm3. |
|  | A storage hut is in the shape of a half cylinder.  The diameter of the semicircle is 8 metres and the length of the hut is 16 metres.  What volume does the hut hold?  402.1  Volume = m3 |
|  | The petroleum storage tanks are cylinders which have a diameter of 80 metres and a height of 40 metres.  The top curved section is only used to contain vapour.  A cubic metre holds one kilolitre.    How many megalitres of petroleum would the three tanks hold?  201  Capacity of three tanks = Megalitres |