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| Year 9 | | *Volume and SA of Prisms and Cylinders* | Non Calculator |
| **Skills and Knowledge Assessed:**   * Solve problems involving the surface area and volume of right prisms (ACMMG218) * Calculate the surface area and volume of cylinders and solve related problems (ACMMG217) * Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids (ACMMG242) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | What is the volume of the rectangular prism?    ……………………………………………  …………………………………………....  ……………………………………………. | | |
|  | This rectangular prism has a volume of 1 200 m2.  What is its height (*h* cm)?  ……………………………………………  …………………………………………....  ……………………………………………. | | |
|  | What is the volume of a cube with sides 6 cm?  ……………………………………………………………………………………………....  ………………………………………………………………………………………………. | | |
|  | What is the surface area of a cube with sides 5 cm?  ……………………………………………  ……………………………………………  …………………………………………… | | |
|  | What is the surface area of the rectangular prism?  ……………………………………………  …………………………………………....  ……………………………………………. | | |
|  | The solid is made by joining cubes together.  Each cube measures 2 cm on each edge.  What is the volume of the solid?    ……………………………………………  …………………………………………....  ……………………………………………. | | |
|  | Find the surface area of the solid whose net is shown.  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | The prism has a rhombus as its base.  What is its volume?      …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | A paperweight is a prism with a face in the shape of a kite, as shown.  It is 3 cm thick and made of glass.  What volume of glass is used to make the paperweight?    …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | Calculate the surface area of the prism shown.  …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | The diagram shows a picnic hamper.  Find the volume of the hamper?    …………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | A storage hut is in the shape of a half cylinder.  The diameter of the semicircle is 10 metres and the length of the hut is 16 metres.  What is its volume, answer in terms of  …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | Part of an artwork is a prism, in the shape shown.  Calculate the volume of the prism.      …………………………………………………  …………………………………………………  …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | A cylindrical water cooler is 60 cm high and has a diameter of 40 cm.  The cylindrical cups that are provided with the cooler have a radius of 2 cm and a height of 10 cm.  How many cups could be filled from the cooler?  …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |
|  | Calculate the surface area of the prism shown.  …………………………………………………  …………………………………………………  …….…………………………………………....  ………………………………………………… | | |

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| Year 9 | | *Volume and SA of Prisms and Cylinders* | Calculator Allowed |
| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 2** Multiple Choice Section | | | |
| Mark all your answers on the accompanying multiple choice answer sheet, not on this test paper. You may do any working out on this test paper. Calculators are allowed for this section. | | | |
|  | Questions 1 – 3 refer to the net shown. | | |
|  | What solid would be formed from the net?  A. Rectangular prism  B. Rectangular pyramid.  C. Square prism.  D. Square pyramid. | | |
|  | What is the total area of the net?  A. 225 cm2 B. 300 cm2 C. 405 cm2 D. 450 cm2 | | |
|  | What is the volume of the solid formed from the net?  A. 225 cm3 B. 300 cm3 C. 405 cm3 D. 450 cm3 | | |
|  | The area of the cross section of this prism is 250 cm2.  What is the volume of the prism?  A. 2 000 cm3  B. 3 200 cm3  C. 4 000 cm3  D. 8 000 cm3 | | |
|  | Which calculation could be used to find the volume of the triangular prism shown?  A.  B.  C.  D. | | |
|  | How many cubic centimetres are there in a cubic metre?  A. 100  B. 10 000  C. 1 000 000  D. 100 000 000 | | |
|  | What is the volume of the prism shown?  A. 18 cm3  B. 180 cm3  C. 1 800 cm3  D. 18 000 cm3 | | |
|  | What is the surface area of the triangular prism shown?  A. 900 cm2  B. 1 000 cm2  C. 1 240 cm2  D. 1 560 cm2 | | |
|  | What is the volume of the cylinder to the nearest cm3?  A. 151 cm3  B. 483 cm3  C. 603 cm3  D. 1 930 cm3 | | |
|  | What is the volume of the solid shown?  A. 161 cm3  B. 966 cm3  C. 1 932 cm3  D. 2 112 cm3 | | |
|  | Jack is building a prism from 1 cm2 cubes. What is the least number of cubes he must add to produce a prism?  A. 6  B. 8  C. 12  D. 14 | | |
|  | What is the surface area of the cylinder?  Answer to the nearest cm2.  A. 905 cm2  B. 1 131 cm2  C. 1 507 cm2  D. 1 583 cm2 | | |
|  | A section of guttering is in the shape of the trapezoidal prism, with cross section as shown.  Its length is 12 metres.  How many litres of water could the section hold when it was completely full?  (1 000 cm3 holds 1 litre)  A. 12.5 litres B. 25.6 litres C. 62.4 litres D. 124.8 litres | | |
|  | C:\Users\Garry\Downloads\shutterstock_87132991.jpgA cylindrical grain silo has an internal diameter of 12 metres and a height of 45 metres.  If each cubic metre of grain weighs 0.75 tonnes, how many rail wagons which carry 120 tonnes each would be needed to empty the silo when it is full?  A. 16 B. 32 C. 35 D. 43 | | |
|  | A barn has the dimensions shown.  Calculate the volume of the barn in cubic metres.  A. 108 m3  B. 216 m3  C. 256 m3  D. 336 m3 | | |

*Multiple Choice Answer Sheet*

*Volume and SA of Prisms and Cylinders*

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

8. A B C D

9. A B C D

10. A B C D

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D

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| Year 9 | | *Volume and SA of Prisms and Cylinders* | Non Calculator |
| **Section 1** Short Answer Section | | | |
| ANSWERS | | | |
| No. | WORKING | | ANSWER |
|  |  | | 240 cm3 |
|  |  | |  |
|  |  | | 216 cm3 |
|  |  | | 150 cm2 |
|  |  | | 280 cm2 |
|  |  | | 160 cm3 |
|  |  | | 184 cm2 |
|  |  | | 288 cm3 |
|  |  | | 324 cm3 |
|  |  | | 1740 cm2 |
|  |  | | 21 200 cm3 |
|  |  | | m3 |
|  |  | | 105 000 cm3 |
|  |  | | 600 cups |
|  |  | | 1 236 cm3 |

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| Year 9 | | *Volume and SA of Prisms and Cylinders* | Calculator Allowed | |
| **Section 2** Multiple Choice Section | | | | |
| ANSWERS | | | | |
| No. | WORKING | | | ANSWER |
|  | It is a rectangular prism | | | A |
|  |  | | | D |
|  |  | | | D |
|  |  | | | C |
|  |  | | | A |
|  |  | | | C |
|  |  | | | B |
|  |  | | | C |
|  |  | | | B |
|  |  | | | C |
|  | There are 8 added. | | | B |
|  |  | | | A |
|  |  | | | D |
|  |  | | | B |
|  |  | | | D |

*Multiple Choice Answer Sheet*

*Volume and SA of Prisms and Cylinders*

Name \_\_\_\_\_\_\_ANSWERS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

8. A B C D

9. A B C D

10. A B C D

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D