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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 1Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | What is the volume of the cube shown?  ……………………………………………………………………..  ……………………………………………………………………..  …………………………………………………………………….. | | |
|  | What is the volume of the rectangular prism?    …………………………………………………………..  …………………………………………………………..  ………………………………………………………….. | | |
|  | Find the volume of the triangular prism shown.  .………………………………………………….  …………………………………………………..  …………………………………………………..  ………………………………………………….. | | |
|  | What is the surface area of the cube formed from the net shown?  ……………………………………………………  ……………………………………………………  ……………………………………………………  …………………………………………………… | | |
|  | What is the surface area of the rectangular prism shown?  ……………………………………………………  ……………………………………………………  ……………………………………………………  …………………………………………………… | | |
|  | An advertising sign for Hayman Island is in the shape of the island and is 5 cm thick.  The sign is made of wood and has an area of 850 cm2.  What volume of wood is in the sign?      ……………………………………………  ……………………………………………  ……………………………………………  …………………………………………… | | |
|  | What is the volume of the trapeziodal prism shown?  .............................................................................    .............................................................................  .............................................................................    ............................................................................. | | |
|  | What is the volume of the triangular prism shown?    .............................................................................    .............................................................................  .............................................................................    ............................................................................. | | |
|  | The prism shown has a cross section which is an equilateral triangle with sides 4 cm and area approximately 6.9 cm2. Its height is 12 cm.    What is its surface area??  ……………………………………………………  ……………………………………………………  ……………………………………………………  …………………………………………………… | | |
|  | Find the surface area of the prism whose net is shown.  ……………………………………………………  ……………………………………………………  ……………………………………………………  …………………………………………………… | | |
|  | What is the volume of the prism shown?  .............................................................................  .............................................................................    .............................................................................  .............................................................................    ............................................................................. | | |
|  | Find the volume of this half cylinder.  Answer in terms of  ……………………………………………………  ……………………………………………………  ……………………………………………………  …………………………………………………… | | |
|  | Each of these hexagonal boxes has a depth of 20 cm and the hexagonal top of each has an area which can be broken into two trapezia as shown.  Find the total volume of the three boxes.  ……………………………………………………  ……………………………………………………  ……………………………………………………  …………………………………………………… | | |
|  | The prism shown has a rhombus as its cross section.  Find the surface area of the prism.  .............................................................................    .............................................................................  .............................................................................    ............................................................................. | | |
|  | A solid wooden cylinder has been cut in half to give this solid.  Find its surface area (in terms of ).  .............................................................................    .............................................................................  .............................................................................    .............................................................................  ............................................................................. | | |

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| Year  9 | | *Volume and SA of Prisms and Cylinders* | Calculator Allowed |
| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Section 2Multiple 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. | | | |
|  | The solid shown is made using 1 cm cubes.    What is the total volume of the solid?  A. 11 cm3  B. 13 cm3  C. 14 cm3  D. 15 cm3 | | |
|  | The cube shown has a volume of 13.824 cm3.  What is its side length?  A. 1.4 cm  B. 2.4 cm  C. 2.8 cm  D. 3.4 cm | | |
|  | What is the volume of the prism shown in cm3?  A. 814 cm3  B. 105 cm3  C. 1 050 cm3  D. 10 500 cm3 | | |
|  | The area of the pentagonal base of this prism is 125 m2.  What is the volume of the prism?  A. 250 m3  B. 500 m3  C. 875 m3  D. 1 000 m3 | | |
|  | Which calculation could be used to find the volume of the triangular prism shown?  A.  B.  C.  D. | | |
|  | What is the volume of the cylinder to the nearest cm3?  A. 1 696 m3  B. 3 393 m3  C. 5 089 m3  D. 6 786 m3 | | |
|  | Find the volume of the triangular prism shown.    A. 4 500 m3  B. 9 000 m3  C. 15 000 m3  D. 18 000 m3 | | |
|  | An air conditioning duct is in the shape of the trapezoidal prism, with cross section as shown below and a length of 14 metres. What is the volume of air held in the duct?    A. 210 cm3  B. 2 940 cm3  C. 5 880 cm3  D. 294 000 cm3 | | |
|  | What is the surface area of the prism whose net is shown here?    A. 112 cm3  B. 140 cm3  C. 152 cm2  D. 200 cm2 | | |
|  | Find the surface area of the triangular prism shown.    A. 984 m3  B. 1 584 m3  C. 1 944 m3  D. 2 544 m3 | | |
|  | A slice of pie, when viewed from above, is a sector of a circle with radius 16 cm and an angle of 36o.  The depth of the slice is 6 cm.  What is the approximate the volume of the slice?  A. 192 cm3 B. 480 cm3  C. 804 cm3 D. 1 930 cm3 | | |
|  | A section of concrete pipe is cylindrical with an outside diameter of 24 cm and an inner diameter of 18 cm. The section is 1.2 m long.  What volume of concrete is used to make the pipe?    A. 238 cm3  B. 950 cm3  C. 23 750 cm3  D. 95 002 cm3 | | |
|  | Find the volume of the prism shown (in cubic metres).  A. 0.3048 m3  B. 3.048 m3  C. 30.48 m3  D. 3 048 m3 | | |
|  | A cylindrical metal beaker has a diameter of 10 cm and a depth of 20 cm and is open at one end.  Find the area of metal used to make the beaker.  A. 157 cm2  B. 628 cm2  C. 707 cm2  D. 785 cm2 | | |
|  | A tractor shed is in the shape shown and is clad with sheet metal.  It is open at one end and has an earth floor.  What area of sheet metal is needed to clad the shed?    A. 55 m2  B. 68 m2  C. 91 m2  D. 107 m2 | | |

# Volume and SA of Prisms and Cylinders

# Multiple Choice Answer Sheet

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

*Volume and SA of Prisms and Cylinders*

# ANSWERS

|  |  |
| --- | --- |
| Section 1 ( 1 mark each) | |
|  | Working and Answers |
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| Section 2 (1 mark each) | | |
|  | Working | Answers |
|  |  | C |
|  |  | B |
|  |  | D |
|  |  | D |
|  |  | A |
|  |  | A |
|  |  | B |
|  |  | D |
|  |  | C |
|  |  | D |
|  |  | B |
|  |  | C |
|  |  | A |
|  |  | C |
|  |  | D |

# Volume and SA of Prisms and Cylinders

# Multiple Choice Answer Sheet

Name \_\_\_ Marking Sheet

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