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| Year  10 | | *Surface Area and Volume of Other Solids* | Calculator Allowed |
| **Skills and Knowledge Assessed:**   * Solve problems involving surface area and volume of right pyramids, right cones, spheres and related composite solids (ACMMG271) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper.  THE DIAGRAMS ARE NOT DRAWN TO SCALE. | | | |
|  | The octagonal pyramid is 6.4 m high and its base has an area of 7.5 m2. Find its volume.  ...................................................................  ...................................................................  ...................................................................    .................................................................. | | |
|  | What is the volume of the square pyramid?  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | A water collector for a tank is in the shape of a rectangular pyramid. How many litres of water can it hold, if 1m3 holds 1 kilolitre of water?  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | Calculate the volume of the triangular prism shown.  ...................................................................  ...................................................................  ...................................................................    .................................................................. | | |
|  | What is the volume of the right cone shown?  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | An antique cannonball is a 28 cm diameter sphere and is made of iron.  What is the volume of the cannonball?  ……………………………………………………………………………  …………………………………………………………………………… | | |
|  | What is the value of L in the square pyramid shown?  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | What is the surface area of the square pyramid shown?  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | What is the surface area of this cone?  ….………………………………………  ………………………………………….  …………………………………………  …………………………………………. | | |
|  | A sphere has a radius of 24 mm.  What is its surface area?  ………………………………………………  ……………………………………………….  ……………………………………………… | | |

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| Year  10 | | *Surface Area and Volume of Other Solids* | 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. | | | |
|  | A right pyramid has an irregular pentagonal base which has an area 134 cm2. The perpendicular height of the pyramid is 18 cm.  What is the volume of the pyramid?  A. 224 cm3 B. 268 cm3 C. 804 cm3 D. 2 412 cm3 | | |
|  | What is the volume of this square pyramid?  A. 480 cm3  B. 21 600 cm3  C. 32 400 cm3  D. 64 800 cm3 | | |
|  | A rectangular pyramid has base dimensions 12 m by 8 m, and has a volume of 224 m3.  What is its perpendicular height?  A. 7 cm B. 7.5 cm C. 8 cm D. 9 cm | | |
|  | Calculate the volume of the triangular prism shown.  A. 0.72 cm3  B. 2.16 cm3  C. 4.32 cm3  D. 8.10 cm3 | | |
|  | A tennis ball is a hollow sphere with an outer diameter of 12 cm and a thickness of 0.4 cm. What volume of air does the tennis ball hold?  A. 70.4 cm3 B. 735.6 cm3 C. 817.3 cm3 D. 6538.3 cm3 | | |
|  | What is the volume of this cone?  A. 28.3 cm3  B. 37.7 cm3  C. 56.5 cm3  D. 84.8 cm3 | | |
|  | What is the surface area of the square pyramid shown?  A. 420 cm2  B. 540 cm2  C. 864 cm2  D. 1 188 cm2 | | |
|  | A snooker set has identical 15 red balls, three of which are shown below. If the entire set of red balls were to be repainted, what area would need to be covered?  A. 848 cm2  B. 1 131 cm2  C. 1 696 cm2  D. 5 089 cm2 | | |
|  | A cone has the dimensions shown.  What is the area of the curved surface of the cone?  A. 15.4 m2  B. 21.6 m2  C. 30.8 cm2  D. 55.4 cm2 | | |
|  | What is the curved surface area of the hemisphere shown below?  A. 5.1 m2  B. 11.3 m2  C. 20.4 cm2  D. 40.7 cm2 | | |

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| Year  10 | *Surface Area and Volume of Other Solids* | Calculator Allowed |
|  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 3** Longer Answer Section | | |
| Write all working and answers in the spaces provided on this test paper. | | |

|  | | **Marks** |
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|  | A container for deodorant is in the shape shown, which is a cylinder topped by a hemisphere. |  |
|  | 1. Given that 1 cm3 holds 1 mL, find the amount of deodorant that the container will hold? Ignore the thickness of the container.   ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **2** |
|  | 1. What is the surface area of the container?   ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **2** |

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|  | The rectangular pyramid has the dimensions shown. The slant height of the front triangular face is 9 cm. |  |
|  | 1. Calculate the slant height ( *l* ) of the side triangular face.   ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **1** |
|  | 1. Find the volume of the pyramid.   ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **1** |
|  | 1. Find the surface area of the pyramid.   ……………………………………………………………………………………………….  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **2** |

*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

*Surface Area and Volume of Other Solids*

ANSWERS

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| Section 1 | |
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| Section 2 | |
|  | C |
|  | B |
|  | A |
|  | A |
|  | B |
|  | D |
|  | D |
|  | C |
|  | A |
|  | C |

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| Section 3 | |
|  | a) |
|  | b) |
| 2. (a) |  |
| (b) |  |
| (c) |  |

*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