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| Year  10 | | Mathematics Test  Further Volume and Surface Area | | Calculator Allowed |
| Short Answer Section | Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | Write all working and answers in the spaces provided on this test paper.  THE DIAGRAMS ARE NOT DRAWN TO SCALE. | | | |
| 1. | Calculate the volume of the square pyramid shown.  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 2. | The hexagonal pyramid has a height of 4.2 m and a base with area 2.4 m2. Find its volume.  ...................................................................  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 3. | Calculate the volume of the rectangular pyramid shown.  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 4. | Calculate the volume of the triangular prism shown.  ...................................................................  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 5. | Find the volume of the cone.  ..........................................................................  .........................................................................    .........................................................................  ......................................................................... | | | |
| 6. | Calculate the volume of the sphere.  .............................................................................  .............................................................................    .............................................................................  ............................................................................. | | | |
| 7. | What is the slant height of the square pyramid shown?  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 8. | What is the surface area of the square pyramid shown?  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 9. | What is the surface area of this cone?  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |
| 10. | What is the surface area of the sphere?  ...................................................................  ...................................................................    ..................................................................  .................................................................. | | | |

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| Year  10 | | Mathematics Test  Further Volume and Surface Area | | Calculator |
| Multiple Choice Section | Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | 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 DIAGRAMS ARE NOT DRAWN TO SCALE. | | | |
| 1. | A square pyramid has base edges 12 cm and a perpendicular of height 16 cm. What is its volume?  A. 256 cm2 B. 768 cm2 C. 1 024cm2 D. 2 304cm2 | | | |
| 2. | An Egyptian pyramid has the dimensions shown. What is its volume?  A. 3 584 m3  B. 5 376 m3  C. 7 168 m3  D. 10 752 m3 | | | |
| 3. | A gift pack of sweets is made in the shape of an octagonal pyramid. The area of the octagon is 54 cm2 and the height of the pack is 16 cm. What is the volume of the pack?    A. 288 cm3  B. 432 cm3  C. 864 cm3  D. 2 592 cm3 | | | |
| 4. | A tetrahedron has a base which is an equilateral triangle with 2 cm edges as shown at right. The perpendicular height of the tetrahedron is 1.5 cm.  What is its volume in cm3?    A.  B.  C.  D. | | | |
| 5. | A design for an ice confection is in the shape of a cone. It is to be completely filled with ice cream.  What volume of ice cream will it hold?  A. 48 cm3  B. 151 cm3  C. 452 cm3  D. 603 cm3 | | | |
| 6. | A set of eight solid metal spheres with 12 cm diameter are used for a game of boules. What volume of metal is used in the boules set?  A. 905 cm3  B. 2 714 cm3  C. 3 619 cm3  D. 7 238 cm3 | | | |
| 7. | A hopper which is used to pour grain into a silo is in the shape of a square pyramid which is open at the top. The side length of the square is 4.2 m and the slant height is 3.9 m. What area of sheet metal is needed to produce the hopper?  A. 8 m2  B. 11m2  C. 26 m2  D. 33 m2 | | | |
| 8. | Jeremy cuts a sheet of paper and rolls it to form a conical shape to use as a loudhailer as shown.  What area of paper is used, assuming there is no overlapping of paper?  A. 283 cm2  B. 346 cm2  C. 565 cm2  D. 820 cm2 | | | |
| 9. | A globe of the earth is to be made with a thin plastic shell. The radius of the globe is to be 25 cm, How many cm2 of plastic will be used for the globe?  A. 7 854  B. 31 416  C. 65 450  D. 523 599 | | | |
| 10. | The observatory was built with cylindrical walls and a hemispherical roof. What is the area of the external walls and roof that need to be painted?  A. 175 m2  B. 242 m2  C. 417 m2  D. 1 043 m2 | | | |

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| Year  10 | Mathematics Test  Further Volume and Surface Area | |
| Multiple Choice  Answer Sheet | Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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

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|  | Mathematics Test  Further Volume and Surface Area |
| Answer Sheet |

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| Short Answer | |
| 1 | 1500 cm3 |
| 2 | 3.36 m3 |
| 3 | 180 cm3 |
| 4 | 540 cm3 |
| 5 | 6.3 m3 |
| 6 | 11.5 m3 |
| 7 | 26 cm |
| 8 | 8 400 cm2 |
| 9 | 395.8 m2 |
| 10 | 254.5 m2 |

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| Multiple Choice | |
| 1 | B |
| 2 | C |
| 3 | A |
| 4 | C |
| 5 | B |
| 6 | D |
| 7 | D |
| 8 | A |
| 9 | A |
| 10 | C |