|  |  |  |  |
| --- | --- | --- | --- |
| Year | | *Surds* | Non Calculator |
| **Skills and Knowledge Assessed:**   * Define rational and irrational numbers and perform operations with surds and fractional indices  (ACMNA264) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | Simplify .  .......................................................................................................................................................... | | |
|  | Simplify  .......................................................................................................................................................... | | |
|  | Simplify  .  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Simplify  .......................................................................................................................................................... | | |
|  | Simplify  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Simplify  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Express with a rational denominator  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Expand  .  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Expand and simplify  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Express  with a rational denominator.  ..........................................................................................................................................................    ........................................................................................................................................................ | | |
|  | Expand and simplify  ..........................................................................................................................................................    .......................................................................................................................................................... | | |
|  | Express  as a complete surd. (i.e as  ..........................................................................................................................................................  .......................................................................................................................................................... | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Year | | *Surds* | 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.  B.  C.  D. | | |
|  | Completely simplify  A.  B.  C.  D. | | |
|  | If  then *x* = ?  A. 54 B. 324 C. 486 D. 2 916 | | |
|  | A.  B.  C.  D. | | |
|  | Express  A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | Simplify  A.  B.  C.  D. | | |
|  | Expand and simplify  A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | Expand .  A.  B.  C.  D. | | |

|  |  |  |
| --- | --- | --- |
| Year | *Surds* | Calculator Allowed |
|  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 3** Longer Answer Section | | |
| Write all working and answers in the spaces provided on this test paper. | | |

|  | | **Marks** |
| --- | --- | --- |
|  | 1. Express  with a rational denominator.   ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **2** |
|  | 1. Arrange the numbers below in ascending order.       ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **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

*Surds*

ANSWERS

|  |  |
| --- | --- |
| Section 1 | |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
|  | Section 2 |
|  | D |
|  | A |
|  | C |
|  | B |
|  | C |
|  | B |
|  | C |
|  | A |
|  | D |
|  | D |

|  |  |
| --- | --- |
| Section 3 | |
|  | a) |
|  | b)          In order |

*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