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| Year 9 | | *Indices* | Non Calculator |
| **Skills and Knowledge Assessed:**   * Apply index laws to numerical expressions with integer indices (ACMNA209) * Express numbers in scientific notation (ACMNA210) * Define rational and irrational numbers and perform operations with surds and fractional indices  (ACMNA264) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Section 1Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Write  in expanded notation.  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
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|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Simplify  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Evaluate  , writing your answer without indices.  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Write  as a normal numeral.  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | What is the value of  ?  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Evaluate  , writing your answer without indices.  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Evaluate  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Write  as a normal decimal numeral.  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | Write 0.000 0367 in standard notation.  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |
|  | The average number of strands of hair on a human head is 150 000.  The population of Perth, WA is approximately 2 million people.  Estimate the number of strands of human hair on the heads of the people of Perth.  Give your answer in standard notation.    ………………………………………………  ……………………………………………………………  ……………………………………………………………………………………………………………  …………………………………………………………………………………………………………… | | |

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| Year 9 | | *Indices* | 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. | | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A. 1 B.  C. 5 D. 50 | | |
|  | A. -16 B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | can be written as:  A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |
|  | What is 58 400 000 when written in standard notation?  A.  B.  C.  D. | | |
|  | What is 0.000 003 72 when written in standard notation?  A.  B.  C.  D. | | |
|  | A.  B.  C.  D. | | |

# Indices

# 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

16. A B C D

17. A B C D

18. A B C D

19. A B C D

20. A B C D

*Indices*

# ANSWERS

|  |  |
| --- | --- |
| Section 1 ( 1 mark each) | |
|  | Working and Answers |
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| Section 2 (1 mark each) | | |
|  | Working | Answers |
|  |  | C |
|  |  | B |
|  |  | A |
|  |  | D |
|  |  | B |
|  |  | C |
|  |  | B |
|  |  | D |
|  |  | C |
|  |  | A |
|  |  | D |
|  |  | A |
|  |  | D |
|  |  | B |
|  |  | C |
|  |  | A |
|  |  | A |
|  | 58 400 000 = | B |
|  |  | C |
|  |  | D |

# Indices

# 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

16. A B C D

17. A B C D

18. A B C

19. A B C D

20. A B C D