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| MC900229237[1] ACE Examinations  2016  **YEAR 8**  **HALF YEARLY EXAMINATION** | | Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Mathematics | | |
| **General Instructions**   * Reading time - 5 minutes * Working time - 75 minutes * Write using black or blue pen * You may use a pencil to draw or complete diagrams * Calculators may be used | **Total marks - 50**  **Section 1**  **20 marks**  Attempt Questions 1-20  Allow 30 minutes for this section  **Section 2**  **30 marks**  This section has two parts  Part A - Questions 21-24 20 marks  Part B - Questions 25-26 (advanced) 10 marks  Allow 45 minutes for this section | |

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| Section 1 |
|  |
| 20 marks |
| Attempt Questions 1 - 20 |
| Allow about 30 minutes for this section |
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| Use the multiple-choice answer sheet for Questions 1-20 |
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| 1. When  is written using index notation, it is: | | |
|  | (A) | |
|  | (B) | |
|  | (C) | |
|  | (D) | |
|  | | |
| 1. What is 800 mm converted to centimetres? | | |
|  | | (A) 0.08 cm |
|  | | (B) 0.8 cm |
|  | | (C) 8 cm |
|  | | (D) 80 cm |
|  | | |
| 1. The expression  can be expressed in words as: | | |
|  | | (A) 5 more than 6 times *x* |
|  | | (B) 6 times 5 more than *x* |
|  | | (C) 6 plus *x* plus 5 |
|  | | (D) 6 plus 5 times *x* |
|  | | |
| 1. What is  written as an improper fraction? | | |
|  | | (A) |
|  | | (B) |
|  | | (C) |
|  | | (D) |
|  | | |

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| 1. Which of the following is *not* equivalent to 10 : 15? | |
|  | (A) 2 : 3 |
|  | (B) 5 : 8 |
|  | (C) 4 : 6 |
|  | (D) 8 : 12 |
|  | |
| 1. What is  expressed as a percentage? | |
|  | (A) 17% |
|  | (B) 37% |
|  | (C) 85% |
|  | (D) 97% |
|  | |
| 1. Which of the following equations does not have the solution *x* = 5? | |
|  | (A) |
|  | (B) |
|  | (C) |
|  | (D) |
|  | |
| 1. Which of the following is a two dimensional shape? | |
|  | (A) Cylinder |
|  | (B) Rectangular prism |
|  | (C) Pyramid |
|  | (D) Pentagon |
|  | |
| 1. The following rectangular prism has a volume of 45 m3. | |
|  | |
| What is the height of the prism? | |
|  | (A) 2 m |
|  | (B) 2.5 m |
|  | (C) 3 m |
|  | (D) 3.5 m |
|  | |

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| 1. Between which two consecutive numbers does  lie? | |
|  | (A) 0 and 1 |
|  | (B) 1 and 2 |
|  | (C) 2 and 3 |
|  | (D) 3 and 4 |
|  | |
| 1. Scarlett can type 200 words in 4 minutes. How many words can she type in 7 minutes? | |
|  | (A) 300 words |
|  | (B) 350 words |
|  | (C) 400 words |
|  | (D) 450 words |
|  | |
| 1. What is the value of  if ? | |
|  | (A) |
|  | (B) 8 |
|  | (C) 14 |
|  | (D) 24 |
|  | |
| 1. What is the solution to the equation ? | |
|  | (A) |
|  | (B) |
|  | (C) |
|  | (D) |
|  | |
|  | |
|  | (A) |
|  | (B) |
|  | (C) 6 |
|  | (D) 14 |
|  | |
| 1. What is the volume of the following cylinder correct to the nearest whole number? | |
|  | |
|  | (A) 550 cm3 |
|  | (B) 635 cm3 |
|  | (C) 700 cm3 |
|  | (D) 770 cm3 |

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| 1. Which decimal number has the smallest value? | | | |
|  | | (A) 5.0081 | |
|  | | (B) 5.0801 | |
|  | | (C) 5.081 | |
|  | | (D) 5.018 | |
|  | | | |
| 1. What is the smallest number that can be added to 6153 to make it divisible by 9? | | | |
|  | | (A) 2 | |
|  | | (B) 3 | |
|  | | (C) 4 | |
|  | | (D) 5 | |
|  | | | |
| 1. Isabella spent $54 of her $60.   What percentage was *not* spent? | | | |
|  | | (A) 6% | |
|  | | (B) 10% | |
|  | | (C) 54% | |
|  | | (D) 90% | |
|  | | | |
| 1. Which expression is equivalent to ? | | |
|  | (A) | |
|  | (B) | |
|  | (C) | |
|  | (D) | |
|  | | |
| 1. The length of the rectangle drawn below is double its width. | | | |
|  | | | |
| What will be the increase in the area of the rectangle if the length of each side is increased by 50%? | | | |
|  | | (A) 50% | |
|  | | (B) 100% | |
|  | | (C) 125% | |
|  | | (D) 250% | |
|  | | | |

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| Section 2 Part A |
|  |
| 20 marks |
| Attempt Questions 21 ‒ 24 |
| Allow about 20 minutes for this section |
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| Answer the questions in the spaces provided. |
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| All necessary working should be shown in every question. |
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| **Question 21** | | | (5 marks) |  | **Marks** |
|  |  |  | | |  |
| (a) | Arrange 60%, 0.63, 0.605 and  in descending order. | | | | **1** |
|  |  | | | |  |
| (b) |  | | | | **1** |
|  |  | | | |  |
| (c) | The temperature at the base of a mountain is 6°C. The temperature at the summit of the mountain is 22°C colder than at the base.  What is the temperature at the summit? | | | | **1** |
|  |  | | | |  |
| (d) | Divide 72 kg in the ratio of 5 : 7. | | | | **1** |
|  |  | | | |  |
| (e) | Evaluate . Answer correct to four decimal places. | | | | **1** |
|  |  | | | |  |

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| **Question 22** | | | (5 marks) |  | **Marks** |
|  |  |  | | |  |
| (a) | A container of cream contains the following ingredients: | | | |  |
|  | 96.7 mL fat, 94.0 mL water, 5.6 mL carbohydrate, 3.7 mL protein | | | |  |
|  | (i) | How many millilitres are in the container of cream? | | | **1** |
|  |  | | | |  |
|  | (ii) | What fraction of the cream is carbohydrate? | | | **1** |
|  |  | | | |  |
|  | (iii) | What percentage of the cream is water? | | | **1** |
|  |  | | | |  |
| (b) | Solve the following equations. | | | |  |
|  | (i) |  | | | **1** |
|  |  | | | |  |
|  | (ii) |  | | | **1** |
|  |  | | | |  |

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| **Question 23** | | | (5 marks) |  | **Marks** |
|  |  |  | | |  |
| (a) | Given that ,  and  evaluate the following expressions: | | | |  |
|  | (i) |  | | | **1** |
|  |  | | | |  |
|  | (ii) |  | | | **1** |
|  |  | | | |  |
| (b) | What is the price paid if the selling price is $275 plus a 10% GST? | | | | **1** |
|  |  | | | |  |
| (c) | What is the value of *x*? | | | | **1** |
|  |  | | | |  |
|  |  | | | |  |
| (d) | Factorise | | | | **1** |
|  |  | | | |  |

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| **Question 24** | | | (5 marks) |  | | | **Marks** |
|  |  |  | | | | |  |
| (a) | What is the value of *x* in the diagram? | | | | | | **1** |
|  |  | | | | | |  |
|  |  | | | | | |  |
| (b) | Expand and simplify . | | | | | | **1** |
|  |  | | | | | |  |
| (c) | Find the area of these shapes. | | | | | | **2** |
|  | (i) |  | | | (ii) |  |  |
|  |  | | | |  | |  |
| (d) | A cube has a surface area of 54 mm2. What is the length of its sides? | | | | | | **1** |
|  |  | | | | | |  |

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| Section 2 Part B: Advanced |
|  |
| 10 marks |
| Attempt Questions 25 ‒ 26 |
| Allow about 15 minutes for this section |
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| Answer the questions in the spaces provided. |
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| All necessary working should be shown in every question. |
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| **Question 25** | | | (5 marks) |  | | | **Marks** |
|  |  |  | | | | |  |
| (a) | A plumber charges a call-out fee of $50 and $75 per hour. | | | | | |  |
|  | (i) | Write an expression for the total cost if the plumber works *h* hours. | | | | | **1** |
|  |  | | | | | |  |
|  | (ii) | Use your expression to work out how many hours the plumber worked for if he charged $500 for a particular job. | | | | | **1** |
|  |  | | | | | |  |
| (b) | A shop sold a refrigerator for $663 and made a 30% profit.  What was the cost price of the refrigerator? | | | | | | **1** |
|  |  | | | | | |  |
| (c) | Find the value of *x* in these diagrams. | | | | | | **2** |
|  | (i) |  | | | (ii) |  |  |
|  |  | | | |  | |  |

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| **Question 26** | | | (5 marks) |  | **Marks** |
|  |  |  | | |  |
| (a) | Given that ,  and  evaluate these expressions. | | | |  |
|  | (i) |  | | | **1** |
|  |  | | | |  |
|  | (ii) |  | | | **1** |
|  |  | | | |  |
| (b) | Find the area of the following shape. Answer correct to one decimal place. | | | | **1** |
|  |  | | | |  |
|  |  | | | |  |
| (c) | Simplify | | | | **1** |
|  |  | | | |  |
| (d) | Simplify | | | | **1** |
|  |  | | | |  |

**End of test**