ACE Examination 2016

Year 10 Mathematics Half Yearly Examination

Worked solutions and marking guidelines

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| **Section 1** | | | |
|  | **Solution** | | **Criteria** |
| 1 |  | | 1 Mark: A |
| 2 | A – 0.3  B - | C -  D - | 1 Mark: B |
| 3 | 2 adults and 3 children () | | 1 Mark: B |
| 4 |  | | 1 Mark: D |
| 5 |  | | 1 Mark: C |
| 6 |  | | 1 Mark: D |
| 7 |  | | 1 Mark: B |
| 8 |  | | 1 Mark: B |
| 9 | Median is the middle score. There are 20 scores.  Median is the average of the 10th and 11th score or 10. | | 1 Mark: D |
| 10 | Most likely score is 7 as there are 6 possibilities.  {16, 61, 25, 52, 34, 43} | | 1 Mark: B |
| 11 | Therefore the radius of the circle is 7 cm | | 1 Mark: C |
| 12 |  | | 1 Mark: C |
| 13 | 2, 3, 4, 4, 5, 5, 5, **5**, 6, 6, 6, 6, 6, 7, 7  , Mode = 6, Median = 5, Range = 5 | | 1 Mark: B |
| 14 |  | | 1 Mark: D |

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| 15 | Small cube  Large cube | | | | 1 Mark: B |
| 16 |  | | | | 1 Mark: D |
| 17 |  | | | | 1 Mark: A |
| 18 | A -  B - | | | C -  D - Incorrect | 1 Mark: B |
| 19 |  | | | | 1 Mark: C |
| 20 | Odd number or divisible by 4 is {1, 3, 4, 5} | | | | 1 Mark: C |
| 21 |  |  | | | 1 Mark: A |
| 22 | Subtract 49 then find the square root. | | | | 1 Mark: D |
| 23 |  | | | | 1 Mark: D |
| 24 |  | | | | 1 Mark: C |
| 25 |  | |  | | 1 Mark: B |

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| **Section 2 Part B** | | |
|  | **Solution** | **Criteria** |
| 26(a) |  | 1 Mark: Correct answer. |
| 26(b) (i) |  | 1 Mark: Correct answer. |
| 26(b) (ii) |  | 1 Mark: Correct answer. |
| 26(b) (iii) |  | 1 Mark: Correct answer. |
| 26(b) (iv) |  | 1 Mark: Correct answer. |
| 27(a) (i) | Louis pays $223.20 for the 12 Blu-rays. | 1 Mark: Correct answer. |
| 27(a) (ii) | Rose will only pay for 5 Blu-rays.    Rose pays $116.25 for the 6 Blu-rays. | 1 Mark: Correct answer. |
| 27(a) (iii) | Compare the cost of the above Blu-rays in the other store.  12 Blu-rays at Store 2    6 Blu-rays at Store 1    Store 1 is the better value. | 1 Mark: Correct answer. |
| 27(b) (i) | 4, 5, 6, 8, 8, 9, **10**, 11, 12, 13, 13, 17, 24  Median is 10 | 1 Mark: Correct answer. |
| 27(b) (ii) |  | 1 Mark: Correct answer. |

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| 28(a) (i) | Diameter is twice the radius. | 1 Mark: Correct answer. |
| 28(a) (ii) |  | 1 Mark: Correct answer. |
| 28(a) (iii) | Height (depth) of the pond is 90 cm = 0.90 m | 1 Mark: Correct answer. |
| 28(a) (iv) |  | 1 Mark: Correct answer. |
| 28((a) (v) |  | 1 Mark: Correct answer. |
| 29(a) | Anthony earns $739.20 for 40 hours work. | 1 Mark: Correct answer. |
| 29(b) |  | 1 Mark: Correct answer. |
| 29(c) (i) | Aaron will receive $2 155.06 in interest. | 2 Marks: Correct answer.  1 Mark: Uses the compound interest formula with at least one correct value. |
| 29(c) (ii) | Bonnie invested $6230. | 1 Mark: Correct answer. |

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| 30(a) (i) | |  | | 2 Marks: Correct answer.  1 Mark: Draws a tree diagram with the correct outcomes. |
| 30(a) (ii) | |  | | 1 Mark: Correct answer. |
| 30(a) (iii) | |  | | 1 Mark: Correct answer. |
| 30(a) (iv) | |  | | 1 Mark: Correct answer. |
| **Section 2 Part A: Advanced** | | | | |
|  | **Solution** | | **Criteria** | |
| 31(a) (i) | Balance owing is $14 000. | | 1 Mark: Correct answer. | |
| 31(a) (ii) | Total amount of interest to be paid is $3640. | | 2 Marks: Correct answer.  1 Mark: Uses SI formula with one correct value. | |
| 31(a) (iii) | Monthly repayment is $735. | | 2 Marks: Correct answer.  1 Mark: Shows some understanding. | |
| 31(b) |  | | 2 Marks: Correct answer.  1 Mark: Shows some understanding of indices. | |

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| 32(a) |  | | 1 Mark: Correct answer. |
| 32(b) |  | | 1 Mark: Correct answer. |
| 32(c) | *x* = 2 or *x* = 8 | | 1 Mark: Correct answer. |
| 32(d) (i) | Pythagoras theorem |  | 1 Mark: Correct answer. |
| 32(d) (ii) | Area of triangle | Area of semi-circle | 1 Mark: Correct answer. |
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