ACE Examination 2016

Year 8 Mathematics Yearly Examination

Worked solutions and marking guidelines

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| **Section 1** | | |
|  | **Solution** | **Criteria** |
| 1 |  | 1 Mark: B |
| 2 | Isosceles triangle has 2 sides equal. | 1 Mark: C |
| 3 |  | 1 Mark: A |
| 4 | Convert all prices to the same quantity (250 mL)  A: $0.34 for 250 mL B: $0.29 for 250 mL  C: $0.50 for 250 mL D: $0.33 for 250 mL  Best price is $2 for 1.75 L ($0.29 for 250 mL) | 1 Mark: B |
| 5 | Sample space is all the possible outcomes.  {H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6}  There are 12 outcomes. | 1 Mark: D |
| 6 |  | 1 Mark: C |
| 7 |  | 1 Mark: A |
| 8 | The larger number is 5. | 1 Mark: C |
| 9 |  | 1 Mark: D |
| 10 |  | 1 Mark: C |
| 11 |  | 1 Mark: C |
| 12 | lies between zero and | 1 Mark: A |

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| 13 |  | 1 Mark: A |
| 14 | Commission | 1 Mark: B |
| 15 | Exterior angle theorem | 1 Mark: B |
| 16 |  | 1 Mark: A |
| 17 | A.  B. 9, 10, 11, **11, 17**, 20, 21, 21Median = 14  C. Mode = 11 and 21  D. | 1 Mark: D |
| 18 |  | 1 Mark: C |
| 19 |  | 1 Mark: D |
| 20 |  | 1 Mark: B |

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| **Section 2 Part B** | | |
|  | **Solution** | **Criteria** |
| 21(a) |  | 1 Mark: Correct answer. |
| 21(b) | 1.65 = 1.650 and 1.7 = 1.700. Therefore halfway is 1.675  or | 1 Mark: Correct answer. |
| 21(c) |  | 1 Mark: Correct answer. |
| 21(d) |  | 1 Mark: Correct answer. |
| 21(e) |  | 1 Mark: Correct answer. |
| 22(a) | Isosceles triangle (two sides equal) – base angles equal (38º)  Vertically opposite angles are equal – angle in triangle is *y.*  (Angle sum of a triangle is 180) | 1 Mark: Answer |
| 22(b) (i) |  | 1 Mark: Correct answer. |
| 22(b) (ii) |  | 1 Mark: Correct answer. |
| 22(c) (i) |  | 1 Mark: Correct answer. |
| 22(c) (ii) |  | 1 Mark: Correct answer. |
| 23(a) (i) | |  |  |  | | --- | --- | --- | | **Score** | **Tally** | **Frequency** | | 0 | |||| | 4 | | 1 | ||| | 3 | | 2 | || | 2 | | 3 | || | 2 | | 4 | **~~||||~~ |** | **6** | | 5 | ||| | 3 | |  | Total | 20 | | 1 Mark: Correct answer. |

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| 23(a) (ii) | Median is the average of the 11th and 12th score  Median is 3.5 | | 1 Mark: Correct answer. |
| 23(b) (i) |  | | 1 Mark: Correct answer. |
| 23(b) (ii) |  | | 1 Mark: Correct answer. |
| 23(c) |  | | 1 Mark: Correct answer. |
| 24(a) | Let the cost of netball be *n*  and the cost of the shirt be *s.*  (total cost). Also  Netball is 18 + 24 = $42 | | 1 Mark: Answer |
| 24(b) | (angle sum of a quadrilateral is 360) | | 1 Mark: Correct answer. |
| 24(c) |  | | 1 Mark: Correct answer. |
| 24(d) |  | | 1 Mark: Correct answer. |
| 24(e) |  |  | 1 Mark: Correct answer. |

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| **Section 2 Part A: Advanced** | | | |
|  | **Solution** | | **Criteria** |
| 25(a) |  | | 1 Mark: Correct answer. |
| 25(b) | Divisible by 2 = {2,4,**6**,8,10,**12**,14,16,**18**,20,22,**24**}  Divisible by 3 = {3,**6**,9,**12**,15,**18**,21,**24**} | | 1 Mark: Correct answer. |
| 25(c) | Construct a line through the vertex parallel to the other two lines.    (alternate angles are equal, parallel lines) |  | 2 Marks: Correct answer.  1 Mark: Finds  with insufficient reasoning. |
| 25(d) | Let the seventh number be *x*.    Seventh number is 9. | | 1 Mark: Correct answer. |
| 26(a) | {1, 2, 2, 2, **2**, 2, 3, 4, 5}. Median is 2.  Add 1 number {0, 1, 2, 2, **2, 2**, 3, 4, 5, *x*}. Median: 2.  Add 2 numbers {0, 1, 2, 2, 2, **2**, 3, 4, 5, *x*, *y*}. Median: 2.  Add 3 numbers {0, 1, 2, 2, 2, **2, 3**, 4, 5, *x*, *y*, *z*}. Median: 2.5.  Median changes when 3 numbers have been added. | | 1 Mark: Correct answer. |
| 26(b) | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | *y* | 0.5 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 |   Gradient = 0.5 and *y*-intercept is 0.5 | | 2 Marks: Correct answer.  1 Mark: Finds the gradient or the *y*-intercept or shows some understanding. |
| 26(c) (i) | (breadth is 12 m less than the length) | | 1 Mark: Correct answer. |
| 26(c) (ii) |  | | 1 Mark: Correct answer. |