ACE Examination 2016

Year 9 Mathematics Half Yearly Examination

Worked solutions and marking guidelines

|  |  |  |
| --- | --- | --- |
| **Section 1** | | |
|  | **Solution** | **Criteria** |
| 1 |  | 1 Mark: C |
| 2 | A:  B:  C:  D: | 1 Mark: B |
| 3 | A: , B: , C: , D: 0.095  Largest value is 0.92. | 1 Mark: A |
| 4 | Increase of 30% requires 130% of the quantity | 1 Mark: B |
| 5 |  | 1 Mark: B |
| 6 |  | 1 Mark: D |
| 7 |  | 1 Mark: D |
| 8 |  | 1 Mark: A |
| 9 |  | 1 Mark: C |
| 10 | Eve earned $477.12 last week. | 1 Mark: C |
| 11 | Irrational numbers cannot be written as a terminating decimal. | 1 Mark: A |
| 12 | Value of sales is $70 000 | 1 Mark: C |

|  |  |  |  |
| --- | --- | --- | --- |
| 13 |  | | 1 Mark: D |
| 14 |  | | 1 Mark: B |
| 15 |  | | 1 Mark: C |
| 16 | and  Midpoint is | | 1 Mark: A |
| 17 | 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 $0.29 for 250 mL. | | 1 Mark: B |
| 18 |  | | 1 Mark: C |
| 19 |  | | 1 Mark: B |
| 20 |  | | 1 Mark: C |
| 21 | , Total number of parts is 9.  9 parts = 72 text messages or 1 part = 8 test messages.  Bailey receives  text messages. | | 1 Mark: B |
| 22 |  |  | 1 Mark: B |
| 23 | If one number is *x*, then the other number is . | | 1 Mark: B |
| 24 |  | | 1 Mark: A |
| 25 |  | | 1 Mark: D |

|  |  |  |
| --- | --- | --- |
| **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(c) |  | 1 Mark: Correct answer. |
| 26(d) | *x*-intercept occurs when *y* = 0  Coordinates of *x*-intercept is | 1 Mark: Correct answer. |
| 27(a) |  | 1 Mark: Correct answer. |
| 27(b) (i) |  | 1 Mark: Correct answer. |
| 27(b) (ii) |  | 1 Mark: Correct answer. |
| 27(c) |  | 1 Mark: Correct answer. |
| 27(d) | Customer paid $45 for the software. | 1 Mark: Correct answer. |
| 28(a) (i) |  | 1 Mark: Correct answer. |
| 28(a) (ii) |  | 1 Mark: Correct answer. |

|  |  |  |
| --- | --- | --- |
| 28(b) (i) |  | 1 Mark: Correct answer. |
| 28(b) (ii) |  | 1 Mark: Correct answer. |
| 28(c) |  | 1 Mark: Correct answer. |
| 29(a) |  | 1 Mark: Correct answer. |
| 29(b) | Let the number be *x* | 1 Mark: Correct answer. |
| 29(c) |  | 1 Mark: Correct answer. |
| 29(d) |  | 1 Mark: Correct answer. |
| 29(e) |  | 1 Mark: Correct answer. |
| 30(a) |  | 1 Mark: Correct answer. |
| 30(b) (i) |  | 1 Mark: Correct answer. |

|  |  |  |  |
| --- | --- | --- | --- |
| 30(b) (ii) |  | | 1 Mark: Correct answer. |
| 30(c) | Using Pythagoras theorem. | | 2 Marks: Correct answer.  1 Mark: Finds the value of *x* or uses the area of a triangle formula with 15. |
| **Section 2 Part A: Advanced** | | | |
|  | **Solution** | **Criteria** | |
| 31(a) (i) | (breadth is 6 m less than the length) | 1 Mark: Correct answer. | |
| 31(a) (ii) |  | 1 Mark: Correct answer. | |
| 31(b) | Let *s* and t be the cost of the shirt and tie respectively.    Substitute *t* + 32 for *s* into equation (1)    Cost of the tie is $24. | 1 Mark: Correct answer. | |
| 31(c) | Doubling the investment requires $20,000 interest.    It will take 12.5 years to double the investment. | 1 Mark: Correct answer. | |
| 31(d) | Let    Multiply equation (1) by 10    Equation (2) – (1) | | 1 Mark: Correct answer. |

|  |  |  |
| --- | --- | --- |
| 32(a) |  | 1 Mark: Correct answer. |
| 32(b) (i) |  | 1 Mark: Correct answer. |
| 32(b) (ii) |  | 1 Mark: Correct answer. |
| 32(c) |  | 1 Mark: Correct answer. |
| 32(d) | The point (4, 6) satisfies the equation.    Equation of the line is | 1 Mark: Correct answer. |