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| **Western Mathematics**  **2013 Year 10**  **Half Yearly Examination**  **Mathematics Course**  **Solutions** | |
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| **Short Answer Questions** | |
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|  |  |
|  | Profit = 28 – 16 = $12.00  Profit as a percentage of the cost price =  = |
|  | Docos : Dramas = 16 : 44 = 4 : 11 |
|  | 0.6 tonnes = 600 kg  Time = |
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|  |  |
|  | Perimeter = |
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|  |  |
|  | Point is on since    The point *P* is (4, 3) |
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|  |  |
|  | Norah’s angle is 72o, which corresponds to 1 440 votes, so each degree corresponds to 20 votes.  Jess’ angle was 108o, which means she got |
|  |  |
|  | Mean = |
|  | From 34 scores the median is the 17th and 18th scores which are 4 and 5, so the median is 4.5.  From the lower 17 scores the median is the 9th score which is a 3.  From the upper 17 scores the median is the 17+9 = 26thscore which is a 5.  Interquartile range = 5 – 3 = **2.** |

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| **Multiple Choice Questions** | | |
|  |  | C |
|  | 53.4782 = 53 (2 sf) | A |
|  | 1.8 kg : 2 400 g = 1800 : 2400  = 18 : 24 = 3 : 4 | A |
|  | Equivalent hours =  Pay = | B |
|  |  | D |
|  |  | B |
|  |  | B |
|  | Triangle Q. | B |
|  | The third angle in Triangle B is 47o , so all angles are acute and 2 are equal. | B |
|  | Rhombus has the diagonals which bisect one another at right angles | A |
|  |  | D |
|  |  | D |
|  |  | C |
|  | Testing with Pythagoras Theorem, only P satisfies the equation. | A |
|  |  | A |
|  |  | D |
|  | Twice *x* = 2*x*  The sum of twice *x* and *y* = 2*x* + *y* | C |
|  | From P go across 10 and up 2, to be parallel to the side QR. This gives (-3+10, 1+2) =(7, 3) | D |
|  |  | C |
|  |  | B |
|  | It is numerical (quantitative) as it uses numbers, and continuous as time is a measured quantity. | A |
|  | The existing scores add to 425,leaving a difference of **45** to make 470. The digit needs to be **5** to indicate 45. | D |
|  | The median is the 6th and 7th scores which are 4 and 5 so median = 4.5. | B |
|  | Mean = | C |
|  | LQ = 14 UQ =21  12, 13, 15, 17, 19, 20, 22, 25  Interquartile range = 21 – 4 = 7 | C |
|  | A  B  C  D. | D |
|  | Rate =  Term = | B |
|  | Rate =  Term = | A |
|  |  | D |
|  | 5 : 3 : 1 = S : 9 : C (multiplication by 3)  = 15 : 9 : 3  Sand = 15 and Cement = 3 | C |
|  |  | C |
|  |  | A |
|  | Some sides are parallel, but they are not necessarily so, | A |
|  | 4th angle in left hand quadrilateral  (Corresponding angles on || lines) | C |
|  |  | A |
|  |  | B |
|  |  | C |
|  |  | D |
|  |  | C |
|  |  | D |
|  | = | A |
|  |  | D |
|  |  | C |
|  |  | B |
|  | Line 1 should be | A |
|  | From 14:00 to 16:30 so 2  hours. | D |
|  | The scores are clustered toward the lower end so it is skewed. | B |
|  | Mean =  Median = 10th and 11th scores;  ie the average of 32 and 34 which is 33.  Mode is 43 (occurs twice) | B |
|  | Interquartile range = 42 – 25 = 17 | D |
|  | Bridgetown data is symmetrical about 13. | A |

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| **Longer Answer Questions** | | |
|  |  | 1 mark |
|  |  | 1 mark |
|  |  | 1 mark |
|  |  | 3 marks for correct answer with reasons  2 marks if a minor error with reasons 1 mark if no reasons |
|  | a) | 1 for volume  1 for capacity |
|  | b) | 1 mark |
|  |  |  |
|  | a) | 2 marks  1 for equation  1 for answer |
|  | b) | 2 marks  1 for angle  1 for bearing |
|  | 1. From table, value =$716.89. | 1 mark |
|  | 1. From table, value of $1 000 = $677.38   Value of $20 000 =  Value lost = | 2 marks  1 for table  value  1 for answer |
|  | |  |  |  |  | | --- | --- | --- | --- | | Class | Class Centre (*x*) | Frequency (*f*) | *fx* | | 1 – 3 | 2 | 2 | 4 | | 4 – 6 | 5 | 5 | 25 | | 7 – 9 | 8 | 8 | 64 | | 10 – 12 | 11 | 4 | 44 | | 13 – 15 | 14 | 5 | 70 | | 16 – 18 | 17 | 6 | 102 |   30 309 | 2 marks  1mark for fx column  1 mark for totals |
|  | b) Mean = | 1 mark |
|  |  | 1 mark |
|  |  | 2 marks  Full marks for a correct solution  1 mark if simple error(s) made |
|  | a) Midpoint = | 1 mark |
|  | b) | 2 marks  1 mark for each distance |