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| --- | --- |
| **Western Mathematics**  **2013 Year 10**  **Half Yearly Examination**  **Mathematics Course**  **Solutions** | |
| **Short Answer Questions** | |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |
| 6. |  |
| 7. | 4.5 kilograms : 750 grams = 4500 g : 750 g  = 450 : 75  = 18 : 3  = 6 : 1 |
| 8. | What is the value of *x* in the diagram? |
| 9. | The base angles *x*o are equal. |
| 10. | |  |  |  | | --- | --- | --- | |  | Property | Yes /No | | All sides equal | Y | | All angles equal | N | | Diagonals are equal | N | | Diagonals intersect at right angles | Y | | Axes of symmetry | Y (2) |   The name is a RHOMBUS |
| 11. |  |
| 12. |  |
| 13. |  |
| 14. |  |
| 15. |  |
| 16. |  |
| 17. |  |
| 18. |  |
| 19. | OR |
| 20. |  |
| 21. | Solve |
| 22. |  |
| 23. | Dance and Games are both 60o which is  of his time. |
| 24. | James spent 6 hours a week playing sport =  of total. |
| 25. | From 20 scores median between 10th and 11th so between 2 and 3. **Median = 2.5**     |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  | ~~O~~ |  |  |  |  |  | | ~~O~~ |  | O | ~~O~~ |  |  |  |  |  | | ~~O~~ |  | ~~O~~ | ~~O~~ | ~~O~~ |  |  |  |  | | ~~O~~ | ~~O~~ | ~~O~~ | ~~O~~ | ~~O~~ |  |  |  |  | | ~~O~~ | ~~O~~ | ~~O~~ | O | ~~O~~ | ~~O~~ |  |  | ~~O~~ | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |

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| **Multiple Choice Questions** | | |
|  |  | D |
|  |  | B |
|  |  | D |
|  |  | C |
|  | 40 hours normal plus 8 hours at time ½  =40 + 12 = 52 hours at normal rates | C |
|  |  | B |
|  |  | D |
|  | Reflection in the line | A |
|  |  | B |
|  |  | C |
|  | Or by testing the four alternative answers. | D |
|  | Diagonals of rhombus | D |
|  |  | A |
|  |  | C |
|  |  | C |
|  |  | B |
|  |  | A |
|  |  | B |
|  |  | D |
|  |  | A |
|  | Choosing 3 males and 4 females from her class of 28 students is a sample of the class. | B |
|  | 4 days at $10 per day = $40 | D |
|  |  | A |
|  | 76 and 98 both occur three times so are both modes. | A |
|  | Range = 100 – 67 = 33 | C |
|  | |  |  |  |  | | --- | --- | --- | --- | | 7 | 4 | 5 | – | | 2 | 6 | 8 |  | | 4 | 7 | 7 |  |   ⌂ = 7 and □ = 6 | A |
|  |  | A |
|  |  | B |
|  |  | D |
|  | Half is $1250. | A |
|  |  | A |
|  | B. | B |
|  |  | C |
|  |  | D |
|  |  | D |
|  |  | C |
|  |  | C |
|  |  | C |
|  |  | A |
|  |  | B |
|  | So the first three are all factors but D is not. | D |
|  |  | C |
|  |  | D |
|  |  | C |
|  |  | A |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ages of Emattogah Cricket Players | | | | | | | | | | 1 | 4 | 5 | 6 | 6 | 8 | 9 |  |  | | 2 | 0 | 2 | 4 | 6 | 7 | 9 | 9 | 9 | | 3 | 1 | 3 | 4 | 5 | 5 | 7 |  |  | | 4 | 2 | 6 |  |  |  |  |  |  | | 5 | 3 |  |  |  |  |  |  |  | | | |
|  | Counting the leaves, there are 23. | B |
|  | From 23 the middle is the 12th leaving 11 above and 11 below. The 12th score is 29 | C |
|  | From the upper 11 scores the middle is the 6th of these leaving 5 above and 5 below, 6th from top is the 18th score which is 35. | B |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  | |  | O |  |  |  |  |  | O |  | |  | O |  |  |  |  |  | O |  | |  | O | O |  |  |  | O | O |  | | O | O | O | O |  | O | O | O | O | | O | O | O | O | O | O | O | O | O | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |  | |  |
|  | It is both Bimodal (2 and 8) and symmetrical. | B |
|  | From observation mean = 5, median = 5,  modes = 2 and 8 and range = 9 - 1 = 8  Mean and median are equal. | C |

|  |  |  |
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| **Longer Answer Questions** | | |
| 76. a) | $1 grows to $1.5869 | **1 mark** |
| b) |  | **1 mark** |
| c) |  | **1 mark** |
| 77. |  | **3 marks total**  3 marks for complete answer with reasons  2 or 1 mark for partial attempts |
| 78. a) |  | **2 marks total**  1 for area  1 for amount of paint |
| b) |  | **1 mark** |
| 79. a) |  | **1 mark** |
| b) |  | **2 marks total**  1 for angle  1 for bearing |
| c) |  | **1 mark** |
| 80. a) | 4, 6, 8 and 12 are on black segments. | **1 mark** |
| b) | 1, 2, 3, and 4 are less than 5.  4, 5, 6, 7, 8 and 12 are on black segments.  4 is on both lists so only count it once, so required numbers are 1, 2, 3, 4, 5, 6, 7, 8 and 12. | **1 mark** |
| 81 a) |  | **1 mark** |
| b) | Both Rounds have skewed distributions but in reverse to one another. Round 1 is skewed toward the higher scores and round 2 is skewed toward the lower scores. Round 1 would have a higher mean and median than Round 2. | **2 marks total**  2 marks for a description that correctly mentions different skew and relative value of the means/ medians.  1 if one of these is mentioned correctly. |
| 82. a) |  | **2 marks total**  2 marks for correct answer  1 for some correct working with a minor error |
| b) |  | **2 marks total**  2 marks for correct solution  1 for some correct working with an error |
| 83. | AB and CD appear parallel. | **3 marks total**  1 gradient  1 gradient  1 conclusion |

High School

Half - Yearly Exam

Mathematics Course

Multiple Choice Section Answer Sheet

Name \_\_\_\_MARKING SHEET Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

26. A B C D

27. A B C D

28. A B C D

29. A B C D

30. A B C D

31. A B C D

32. A B C D

33. A B C D

34. A B C D

35. A B C D

36. A B C D

37. A B C D

38. A B C D

39. A B C D

40. A B C D

41. A B C D

42. A B C D

43. A B C D

44. A B C D

45. A B C D

46. A B C D

47. A B C D

48. A B C D

49. A B C D

50. A B C D

51. A B C D

52. A B C D

53. A B C D

54. A B C D

55. A B C D

56. A B C D

57. A B C D

58. A B C D

59. A B C D

60. A B C D

61. A B C D

62. A B C D

63. A B C D

64. A B C D

65. A B C D

66. A B C D

67. A B C D

68. A B C D

69. A B C D

70. A B C D

71. A B C D

72. A B C D

73. A B C D

74. A B C D

75. A B C D