Western Mathematics Exams

Yearly Examination

2015

Year 10

Mathematics Course

Solutions

|  |  |  |  |
| --- | --- | --- | --- |
| Year 10 | | *WME Yearly Maths* | Non Calculator |
| **Section 1** Short Answer Section | | | |
| ANSWERS | | | |
| No. | WORKING | | ANSWER |
|  |  | | 0.65 |
|  |  | | $40 |
|  |  | | $960 |
|  |  | |  |
|  |  | |  |
|  |  | | 6.6 kg |
|  |  | | 15 000 cm2 |
|  |  | | 18 000 cm3 |
|  |  | |  |
|  |  | |  |
|  |  | | Gradient = 2 |
|  |  | |  |
|  |  | |  |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | ⃝ |  |  | |  |  |  |  |  | ⃝ | ⃝ |  | |  |  |  | ⃝ | ⃝ | ⃝ | ⃝ |  | |  |  | ⃝ | ⃝ | ⃝ | ⃝ | ⃝ |  | | ⃝ | ⃝ | ⃝ | ⃝ | ⃝ | ⃝ | ⃝ | ⃝ | | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | | | 35% |
|  |  | | 50.5 |
|  | 12.5 : 50 = 125 : 500  = 5 : 20  = 1 : 4 | | 1 : 4 |
|  |  | |  |
|  |  | |  |
|  |  | | 1300 cm2 |
|  |  | | 120 cm3 |
|  | The points *A’* and *B’* need to be located by any reasonable construction method and the triangle drawn and labelled. | | |
|  | There are 5 black counters, 5 patterned counters and 4 white counters, so both black and patterned have a  chance of being picked up. | | Black and Patterned |
|  |  | |  |
|  |  | | |
|  | **Can also be done by ratio of areas.**  Ratios of Length A : Length B = 4:3  So ratio Area A : Area B = 16:9 | | 180 cm2 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year 10 | | *WME Yearly Maths* | Calculator Allowed | |
| **Section 2 Part A** Multiple Choice Section | | | | |
| ANSWERS | | | | |
| No. | WORKING | | | ANSWER |
|  |  | | | C |
|  |  | | | C |
|  | A. $840 per week =  B. $1650 per fortnight =  C. $3580 per month =  D. $43 500 per annum. | | | A |
|  |  | | | B |
|  |  | | | A |
|  |  | | | D |
|  |  | | | C |
|  |  | | | C |
|  | Completing the missing angles, all three triangles are equiangular.  Comparing the known side, only  have the side between the same angles, so they are congruent. | | | B |
|  |  | | | D |
|  | Between 1900 and 1920 there was a drop of 1800, (50% decrease) which is the biggest change, in both absolute and relative terms. | | | D |
|  | A(–4, 6) and B(–10, –8). | | | B |
|  |  | | | D |
|  |  | | | A |
|  | Training time : Playing time = 7 : 5  = 28 : *P* | | | A |
|  | Number with more than four = 12 + 11 + 8 + 7 = 38  Percentage = | | | B |
|  |  | | | D |
|  |  | | | B |
|  |  | | | D |
|  |  | | | C |
|  |  | | | D |
|  |  | | | A |
|  |  | | | C |
|  |  | | | A |
|  | Slowest is 67 km/h | | | B |
|  |  | | | C |
|  |  | | | B |
|  |  | | | B |
|  |  | | | A |
|  |  | | | D |
|  |  | | | C |
|  |  | | | A |
|  |  | | | B |
|  |  | | | D |
|  |  | | | C |
|  |  | | | C |
|  | The data is numerical and since there are points, it is discrete. | | | C |
|  | |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 2 | 2 | 8 |  |  |  |  |  |  |  |  | Q1 | | 3 | 7 | 9 |  |  |  |  |  |  |  |  |  | | 4 | 5 | 7 | 8 | 8 | 8 | 8 |  |  |  |  | Q2 | | 5 | 2 | 4 | 5 | 5 | 7 | 7 | 8 | 8 | 9 |  | Q3 | | 6 | 0 |  |  |  |  |  |  |  |  |  |  |   Q2 (median) =  Q1 (1st quartile ) =  Q3 (3rd quartile) =  Interquartile range = 57 – 46 = 11 | | | B |
|  | P (56 or greater) =  P (less than 56) = | | | D |
|  |  | | | D |
|  |  | | | D |
|  |  | | | A |
|  |  | | | A |
|  |  | | | A |
|  |  | | | B |
|  | 24 is the bottom of the box, so the lower quartile (25% mark).  44 is the top extreme (100% mark)  There are 75% of scores between these. | | | D |
|  | Both have a gradient of 2, so are parallel. | | | C |
|  | It is a concave down parabola, so the equation could be | | | C |
|  | The triangles are similar, one pair of equal angles given, and a pair of vertically opposite angles equal, so triangles are equiangular and hence similar. | | | B |
|  | A strong positive relationship indicates the points group around a straight line which has a positive gradient, so A meets this criteria. | | | A |

School Name

Year 10 Yearly Examination

**WME Yearly Maths Course 2015**

Multiple Choice Section Answer Sheet

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

Use a black or blue pen or 2B pencil.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
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| **Section 2 Part B** Longer Answer Section | | | | |
| ANSWERS | | | | |
|  | | | | **Marks** | |
| 76. | 1. The data is (positively) skewed. | | | 1 mark for correct answer |
|  |  | | | 1 mark for correct answer |
|  | 1. Median = middle of 30 which are 15th and 16th scores.   From CF column Median = 3 | | | 1 mark for correct answer |
|  | 1. LQ = 8th score = 2   UQ = 23rd score = 4  Interquartile range = 4 – 2 = 2 | | | 1 mark for correct answer |
| 77. | (a) | | | 1 mark for correct answer |
|  | (b) | | | 1 mark for correct SA  1 mark for correct mass calculated from SA found. |
| 78. | (a) | | | 2 marks for correct answer with working.  1 mark for incorrect answer with minor error in working  1 mark for correct answer without working. |
|  | (b) | | | 2 marks for correct answer with working.  1 mark for incorrect answer with minor error in working |
| 79. | (a) | | | 1 mark for correct answer |
|  | (b) | | | 1 mark for correct answer |
| 80. | The triangles AED and ABC are similar; | | | 2 marks for correct answer.  1 mark for incorrect answer with minor error in working |
| 81. | (a) | | | 2 marks for correct answer.  1 mark for incorrect answer with minor error in working  Or if ND found correctly but not the height of Mt. |
|  | (b) | | | 2 marks for correct distance.  1 mark for an answer with working which has minor errors in reasoning or calculation. |

|  |  |  |
| --- | --- | --- |
| 82. |  |  |
|  | (a) | 1 mark for correct answer |
|  | (b) | 1 mark for correct answer |
|  | (c) | 1 mark for correct answer |
|  | (d) | 1 mark for correct answer |
| 83. |  |  |
|  | (a) | 1 mark for correct answer |
|  | (b) | 1 mark for correct answer |