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| *School Name*  *Mathematics Test 2017* | | | |
| Year 9 | | *Coordinate Geometry* | Calculator Allowed |
| **Skills and Knowledge Assessed:**   * Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software (ACMNA214) * Find the midpoint and gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software (ACMNA294) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | **Question 1 – 5 refer to the number plane shown.** | | |
|  | Write down the coordinates of the points *G, H* and *I* ?  ………………………………………………………………………………………………. | | |
|  | Plot and label the points  on the number plane above. | | |
|  | What is the distance *GH* ?  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | What is the midpoint of the interval *HI* ?  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | What is the gradient of the interval *GI* ?  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | The points *P*, *Q* and *R* are three vertices of a rhombus.  The point *S* is the fourth vertex.  What are the coordinates of the point *S*?  .....................................................................    .....................................................................  ..................................................................... | | |
|  | What is the midpoint of the interval joining  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | What is the gradient of the line shown?  …………………………………………  ………………………………………….  …………………………………………  …………………………………………. | | |
|  | What is the length of the interval joining  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | What is the gradient of the line joining  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | What is the value of *p* ?  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | *ABC* is a right triangle on the number plane*.*  Find the perimeter of the triangle.      ……………………………………………  ……………………………………………  ……………………………………………  …………………………………………… | | |
|  | Questions 13 – 15 refer to the diagram below.  The points *K* (–6, –6), *L* (–4, 3), *M* (6, 5) and  *N*(4, –4) are shown on the number plane.  The line segments *LM* and *KN* are joined. | | |
|  | Show that the segment *LM* is parallel to *KN*.  ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | | |
|  | The segments *LN* and *KM* are joined.  Show that, the segment *LN* bisects *KM.*  ………………………………………………………………………………………….  …………………………………………………………………………………………. | | |
|  | The segments *LK* and *MN* are joined.  Show that, the segments *LK* and *MN* are equal in length*.*  ………………………………………………………………………………………….  …………………………………………………………………………………………. | | |

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| Year 9 | | *Coordinate Geometry* | Calculator Allowed |
| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 2** Multiple Choice Section | | | |
| Mark all your answers on the accompanying multiple choice answer sheet, not on this test paper. You may do any working out on this test paper. Calculators are allowed for this section. | | | |
|  | Questions 1 and 2 refer to the number plane below. | | |
|  | Which of the points lies in the 4th quadrant of the number plane?  A. Point *E* B. Point *F* C. Point *G* D. Point *H* | | |
|  | The gradient of the interval joining two of the points has a gradient of –1.  Which two points were joined?  A. Points *E* and *F* B. Points *E* and *G*  C. Points *E* and *H* D. Points *F* and *H* | | |
|  | What is the gradient of the line *JK*?  A.  B.  C.  D. | | |
|  | What is the midpoint of the interval joining (6, –1) and (–4, 7)?  A. (1, 3) B. (1, –3) C. (–1, 3) D. (5, 4) | | |
|  | What is the distance between the points *C*(–2 , –7) and *D*(6, 8)?    A. 8 units B. 12 units C. 15 units D. 17 units | | |
|  | Questions 6 – 8 refer to the number plane shown. | | |
|  | Find the midpoint of the interval *FG*.  A.  B.  C.  D. | | |
|  | What is the gradient of the interval *FG*?  A. –1 B.  C.  D. 1 | | |
|  | What is the length of the interval *FG* ?  A. 10 units B.  units C.  units D.  units | | |
|  | Find the gradient of the interval joining *T*(–6, 4) and *U*(–9, –2).  A.  B.  C.  D. 2 | | |
|  | Find the length of the interval joining *D*(–6, 1) and *E*(–5, 8).  A.  B.  C.  D. | | |
|  | The points A (9, –4), B (4, 7) and C (–2, 1) are joined to form a triangle.  Which term could correctly describe the triangle?  A. Equilateral B. Isosceles C. Scalene D. Right Angled | | |
|  | The midpoint of the interval *PQ* is the point *M* (4, 1).  *P* has coordinates (3, 6).  What are the coordinates of B?  A. (–5, –4)    B. (–5, 4)    C. (5, –4)  D. (–4, 5) | | |
|  | Given the points  , which statement is true?  A. *AB* is parallel to *CD*.  B. *AB* is parallel to *BC*.  C. *AD* is parallel to *BC*.  D. *AD* is parallel to *CD*. | | |
|  | The gradient of the interval *PQ* is  *P* has coordinates (–4, –6), which of the following could be the coordinates of *Q*?  A.  B.  C.  D. | | |
|  | The points *K* (–5, 3) and *L* (8, 3) are shown.  *M* is the point on the y axis such that *MK* = *KL*.  What are the coordinates on *M*?  A. (0, 12)  B. (0, 15)  C. (0, 17)  D. (0, 20) | | |

*School Name*

*Mathematics 2017*

*Multiple Choice Answer Sheet*

*Coordinate Geometry*

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

8. A B C D

9. A B C D

10. A B C D

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D

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| *School Name*  *Mathematics Test 2017* | | |
| Year 9 | *Coordinate Geometry* | Non Calculator Section |

ANSWERS

| Question | Working and Answer |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  | **S(1, –3)** |
|  | Midpoint of |
|  |  |
|  | Distance from |
|  | Gradient of the line joining |
|  |  |
|  |  |
|  |  |
|  |  |
|  | The line segments are equal in length both being . |

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| *School Name*  *Mathematics Test 2017* | | |
| Year 9 | *Coordinate Geometry* | Calculator Allowed  Multiple Choice  Section |

ANSWERS

|  |  |  |
| --- | --- | --- |
| Question | Working | M C Answer |
|  | F is in 4th quadrant | **B** |
|  | *EF* is vertical, *EG* and *EH* have positive gradients, and only *FH* could have a gradient of –1 | **D** |
|  |  | **C** |
|  | Midpoint of (6, –1) and (–4, 7)? | **A** |
|  |  | **D** |
|  |  | **C** |
|  |  | **D** |
|  |  | **B** |
|  | *T*(–6, 4) and *U*(–9, –2). | **D** |
|  | *D*(–6, 1) and *E*(–5, 8). | **A** |
|  | There are two equal sides, and no right angle ( as sum of squares does not obey Pythagoras) only **Isosceles applies.** | **B** |
|  |  | **C** |
|  | So *AB* and *CD* are parallel | **A** |
|  |  | **D** |
|  |  | **B** |

*School Name*

*Mathematics 2017*

*Multiple Choice Answer Sheet*

*Coordinate Geometry*

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

8. A B C D

9. A B C D

10. A B C D

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D