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| Year  9 | | *Equations and Inequations* | Non Calculator |
| **Skills and Knowledge Assessed:**   * Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215) * Substitute values into formulas to determine an unknown (ACMNA234) * Solve problems involving linear equations, including those derived from formulas (ACMNA235) * Solve linear inequalities and graph their solutions on a number line (ACMNA236) * Solve linear equations involving simple algebraic fractions (ACMNA240) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | Solve the equation :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve the equation :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve the equation :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve the equation :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Determine if  is a solution to the equation:  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Solve the inequality :  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Graph the solution to  on the number line provided.  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |
|  | Write the inequality which is represented on the number line below.  ………………………………………………………………………………………………. | | |
|  | The formula for the area of a trapezium is given by  What is the value of *h* if *A* =16, *a* = 2 and *b* = 6?  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | | |

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| Year  10 | | *Equations and Inequations* | 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. | | | |
|  | Solve for  *t*:    A.  B.  C.  D. | | |
|  | Which is the correct solution to the equation:    A.  B.  C.  D. | | |
|  | Which line in the solution of the equation  , contains an error, if any?     1. Line 1 B. Line 2 C. Line 3 D. There is no error. | | |
|  | Which of the following is the solution to the equation  ?   1. B.  C.  D. | | |
|  | Which of the following is the solution to the equation   1. B.  C.  D. | | |
|  | Use the formula  to find the value of *y* when *m* = 6, *a* = 5, *x* = 8 and *b* = 6.  A.  B.  C.  D. | | |
|  | The formula gives the shaded area shown.  Find the value of *b*, when  and  A*.*  B. *b* = 11  C. *b* = 12 D. *b* = 15 | | |
|  | Which number line graph gives the solution to  ?  A.  B.  C.  D. | | |
|  | The solution to  is:  A.  B.  C.  D. | | |
|  | Which line in the solution below contains an error?     1. Line 1 B. Line 2 C. Line 3 D. Line 4 | | |

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| Year | *Equations and Inequations* | Calculator Allowed |
|  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 3** Longer Answer Section | | |
| Write all working and answers in the spaces provided on this test paper. | | |

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| 1. Solve the equations below, showing all lines of working. | | | | |
|  | (a)  2 marks | ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. | (c)  3  marks | ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. |
| (b)  2 marks | ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. | (d)  3  marks | ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. |
| 2. | a)  3  marks | Solve,  and graph solution on a number line.  ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. | (b)  3 marks | Use the formula  to find the value of *a* when, and *t* = 3.  ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. |
| 3. | a)  3  marks | A rectangle is 3 metres longer than it is wide. Its perimeter is 42 metres. Let the length be *L* metres.  The perimeter is given by  i) Write an expression for W in terms of *L*.  ………………………………………….  ii) Write an equation for *L* and solve it to find the length.  ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. | (b)  3 marks | If six is added to one quarter of a number, the result is three less than the original number.   1. Using *n* for the number, write an equation from the description above.   ………………………………………….  ………………………………………….   1. Solve the equation to find the number.   ………………………………………….  ………………………………………….  ………………………………………….  …………………………………………. |

*Multiple Choice Answer Sheet*

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

*Equations and Inequations*

ANSWERS

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| Section 1 | |
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| Section 2 | |
|  | B |
|  | D |
|  | B |
|  | A |
|  | A |
|  | C |
|  | C |
|  | D |
|  | D |
|  | C |

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| Section 3 | | |
|  | a) | 2 marks for correct solution.  1 mark for a solution with a single error, or two minor errors. |
|  | b) | 2 marks for correct solution.  1 mark for a solution with a single error, or two minor errors. |
|  | c) | 3 marks for correct solution.  2 mark for a solution with a single error  1 mark for a solution or two or more errors. |
|  | d) | 3 marks for correct solution.  2 mark for a solution with a single error  1 mark for a solution or two or more errors. |
|  | a) | 3 marks in total  2 marks for solving correctly, or 1 for solution with minor error.  1 mark for graphing the solution obtained correctly. |
|  | b) | 3 marks for correct solution.  2 marks for a solution with a single error  1 mark for a solution or two or more errors. |
|  | a) i)  ii) | i) 1 mark  ii) 2 marks for correct solution.  1 mark for a solution with a single error, or two minor errors. |
|  | b) i)  ii) | 3 marks in total.  1 mark for writing the equation.  2 marks for correct solution to the equation.  1 mark for a solution with a single error, or two minor errors. |

*Multiple Choice Answer Sheet*

Name Marking Sheet

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