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| Year  7 | Mathematics Practice Test–  Basic Algebra | **Non Calculator Practice Test** |
|  | Name |  |

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|  | Questions 1 – 3 refer to the diagram below, where matchsticks are used to make a pattern.  1 shape 2 shapes 3 shapes  4 matches 8 matches 12 matches |
| 1. | How many matches are needed to produce 4 shapes?  4 12 15 16 |
| 2. | How many matches would be needed to make 7 shapes?  matches. |
| 3. | Complete the statement below.  The number of matches = × the number of shapes. |

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|  | Questions 4 – 6 refer to the diagram below, of repeated patterns of hexagons. |
| 4. | How many sides would be needed to make this pattern with 4 hexagons?  sides. |
| 5. | How many sides would be needed to make this pattern with 8 hexagons?  31 sides 41 sides 42 sides 48 sides |
| 6. | Complete the statement below.  The number of sides = × the number of hexagons + |
|  | Questions 7 – 9 refer to the pattern of numbers below. |
| 7. | What number would be at position 4 in the pattern? |
| 8. | What number would be at position 6 in the pattern? |
| 9. | Complete the statement below.  Number = ─ × the position in the pattern. |

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| 10. |  |
| 11. |  |
| 12. | Which of the following is **not** equivalent to ? |
| 13. |  |
| 14. | Simplify the expression  *x* |
| 15. | Which of the following is **not** equivalent to ? |
| 16. |  |
| 17. | Simplify |
| 18. | Which of the following is **not** equivalent to ? |
| 19. |  |
| 20. | Simplify  . |
| 21. |  |
| 22. | Simplify |
| 23. |  |
| 24. |  |
| 25. | Simplify |
| 26. | Which of the following is **not** equivalent to ? |
| 27. | If , then  64 32 16 576 |
| 28. | When  8 |
| 29. | When calculate the value of |
| 30. | Find the value of  when |
| 31. | Using the rule , find the value of |
| 32. | Complete the values in the table using the rule . |
| 33. | Complete the values in the table using the rule . |
| 34. | Solve the equation to find the value of |
| 35. | Solve the equation  to find the value of |