

Section 3.4 – Attributes of Quadratic Equations

Problem Set 3

Complete the square with the following polynomials.

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| 1. $x^2 + 5x - 5$ | 2. $x^2 - 2x + 6$ | 3. $x^2 - 8x + 5$ | 4. $-2x^2 - 6x + 8$ |
| 5. $-x^2 - x + 5$ | 6. $x^2 - 6x - 1$ | 7. $x^2 + 4x + 9$ | 8. $x^2 + 5x - 8$ |
| 9. $-x^2 + 8x - 3$ | 10. $-3x^2 + 9x + 9$ | 11. $-8x^2 + 8x - 6$ | 12. $-6x^2 + x + 2$ |

Find equation of the axis of symmetry and the coordinates of the vertex for each of the following polynomials by completing the square.

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| 13. $y = x^2 - 10x - 6$ | 14. $y = x^2 - 7x - 8$ | 15. $y = -4x^2 - 4x + 8$ | 16. $y = -10x^2 + x + 8$ |
| 17. $y = -6x^2 + 5x - 4$ | 18. $y = x^2 + 5x + 10$ | 19. $y = -4x^2 - 4x + 10$ | 20. $y = 2x^2 - 3x + 1$ |
| 21. $y = 9x^2 - 10x - 2$ | 22. $y = -4x^2 - 4x + 8$ | 23. $y = 7x^2 - 9x + 10$ | 24. $y = 2x^2 - 3x + 9$ |

Find equation of the axis of symmetry and the coordinates of the vertex for each of the following polynomials by using the formula for the coordinates of the vertex.

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| 25. $y = x^2 + 9x + 3$ | 26. $y = -4x^2 - 8x - 1$ | 27. $y = 8x^2 - 4x + 7$ | 28. $y = 4x^2 - 5x - 6$ |
| 29. $y = -x^2 - 9x + 1$ | 30. $y = 2x^2 + 2x - 7$ | 31. $y = -7x^2 - 6x - 4$ | 32. $y = 7x^2 - 9x + 7$ |

Graph the following equations by finding the vertex and y-intercept.

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| 33. $y = x^2 + 3x + 8$ | 34. $y = -x^2 + 7x + 5$ | 35. $y = -7x^2 - 7x - 2$ | 36. $y = 3x^2 + 9x - 5$ |
| 37. $y = -7x^2 + 7x + 4$ | 38. $y = -5x^2 - 7x - 5$ | 39. $y = 2x^2 - 3x + 3$ | 40. $y = x^2 + 4x - 5$ |