

Section 3.4 – Attributes of Quadratic Equations

Problem Set 2

Complete the square with the following polynomials.

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

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

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. $y = -8x^2 + 8x - 4$ | 26. $y = 2x^2 - x - 8$ | 27. $y = -x^2 - 10x - 3$ | 28. $y = -9x^2 + 2x + 2$ |
| 29. $y = -10x^2 - x + 7$ | 30. $y = -x^2 + 4x + 4$ | 31. $y = 4x^2 + 8x + 3$ | 32. $y = -8x^2 + 3x - 4$ |

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

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| 33. $y = x^2 - 5x + 8$ | 34. $y = 10x^2 + 7x - 4$ | 35. $y = 2x^2 + 10x + 10$ | 36. $y = -8x^2 - x + 5$ |
| 37. $y = -x^2 - 6x - 10$ | 38. $y = 3x^2 + 9x - 12$ | 39. $y = 10x^2 - 10x + 6$ | 40. $y = -5x^2 + 6x + 5$ |