Quadratics Unit: Classwork & Homework

Characteristics of Quadratics

Class Work

If the following equation is a quadratic, write the equation in standard form.

1. $y= 2 + 3x^2 – 5$

2. $4x – 5 = x + y$

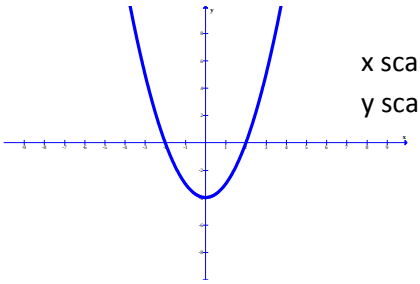
3. $5x +4y= x^2 – 2$

4. $4x^2 – 2 = 4x$

5. $3x^2 + 2x = 3x^2 – 6$

For each of the following graphs, find the direction the parabola opens, the vertex, state whether the vertex is a maximum or minimum, the domain, the range, the axis of symmetry, and the x-intercepts, if any exist.

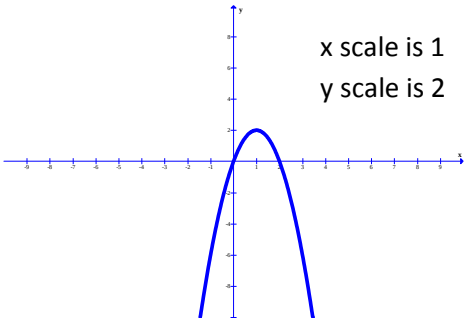
6.



x scale is 1

y scale is 2

7.



x scale is 1

y scale is 2

Homework

If the following equation is a quadratic, write the equation in standard form.

8. $y= 7 + 3x – 5$

9. $4x – 6 = x^2 + y$

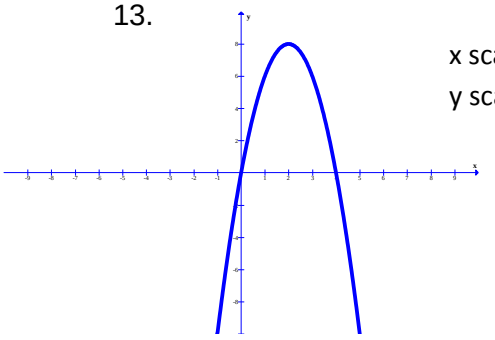
10. $10x +2y= 8x^2 – 2$

11. $4x^2 – 2 +10x = 4x$

12. $3x^2 - 2x = 2x^2 – 7$

For each of the following graphs, find the direction the parabola opens, the vertex, state whether the vertex is a maximum or minimum, the domain, the range, the axis of symmetry, and the x-intercepts, if any exist.

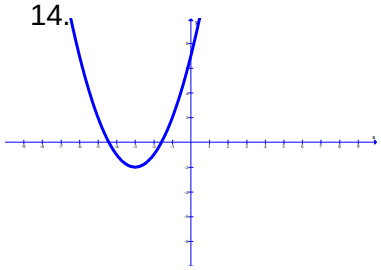
13.



x scale is 1

y scale is 2

14.



x scale is 1

y scale is 2

Identifying Parts of a Parabola

Class Work

Find the axis of symmetry, the vertex, and the y-intercept of each parabola. Graph the quadratic.

15. $y= x^2 + 2x + 1$
16. $y= x^2 - 6x + 8$
17. $y= x^2 - 4x - 2$
18. $y= 2x^2 + 6x + 3$
19. $y= 3x^2 - 4x - 2$

Without graphing, does the graph of the given equation open up or down? Is the graph wider or narrower than the parent equation of $y=x^2$? What is the y-intercept?

20. $f(x) = 2x^2 +3x -4$
21. $y = -.7x^2 -4x +3$
22. $y = -1.2x^2 +6$
23. $g(x) = 3x^2 +3x$
24. $y = -4x^2$

Homework

Find the axis of symmetry, the vertex, and the y-intercept of each parabola. Graph the quadratic.

25. $y= x^2 + 2x - 8$
26. $y= x^2 - 4x + 3$
27. $y= .5x^2 + 3x - 8$
28. $y= x^2 + 7x + 6$
29. $y= 3x^2 - 4x$

Without graphing, does the graph of the given equation open up or down? Is the graph wider or narrower than the parent equation of $y=x^2$? What is the y-intercept?

30. $f(x) =-.6x^2 +3x -6$
31. $y = 1.7x^2 -4x +5$
32. $y = -1.02x^2 +8$
33. $g(x) = 1.3x^2 +4x$
34. $y = 5x^2$

Transformations

Class Work

In each exercise the function is given. Describe the transformation of the parent function. Graph the function.

35. $f(x) = x^2 + 4$
36. $g(x) = x^2 - 2$
37. $f(x) = (x - 2)^2$
38. $g(x) = (x + 3)^2$
39. $f(x) = -x^2$
40. $g(x) = (-x)^2$

Home Work

In each exercise the function is given. Describe the transformation of the parent function. Graph the function.

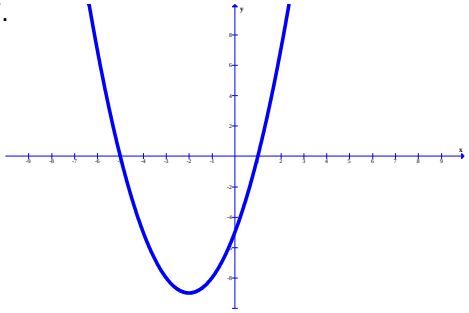
41. $f(x) = 3x^2$
42. $g(x) = (2x)^2$
43. $f(x) = \left(\frac{1}{2}x\right)^2$
44. $g(x) = .3x^2$
45. $f(x) = -2(x + 1)^2$
46. $g(x) = (x - 3)^2 + 4$

Graphing to Find Zeros

Class Work

Find the zeros of the following quadratics:

47.



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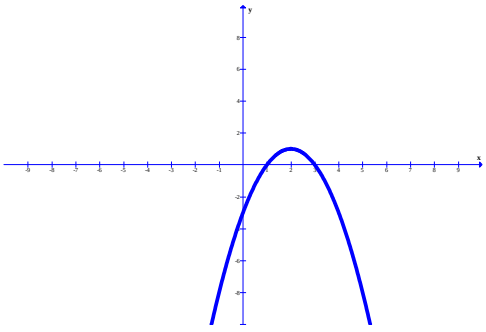


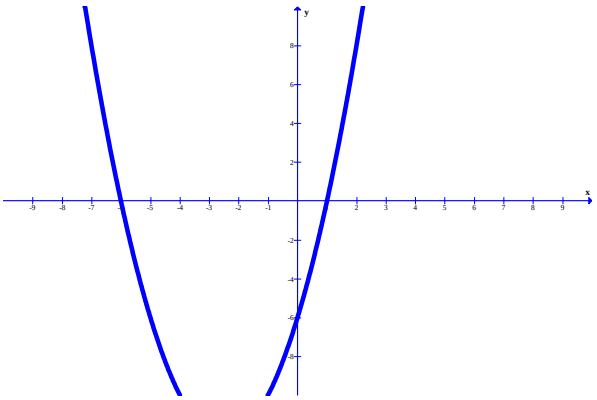
Find the zeros of the following quadratics by graphing.

49. $y = x^2 - 4x + 3$
50. $h(x) = -x^2 + 3x - 8$
51. $y = -x^2 - 8x - 15$
52. $y = -x^2 - 8x - 16$
53. $f(x) = x^2 + 3x - 10$
54. $g(x) = 2x^2 + 4x + 2$
55. $y = -3x^2 + 4x + 4$

Homework

Find the zeros of the following quadratics:

56.



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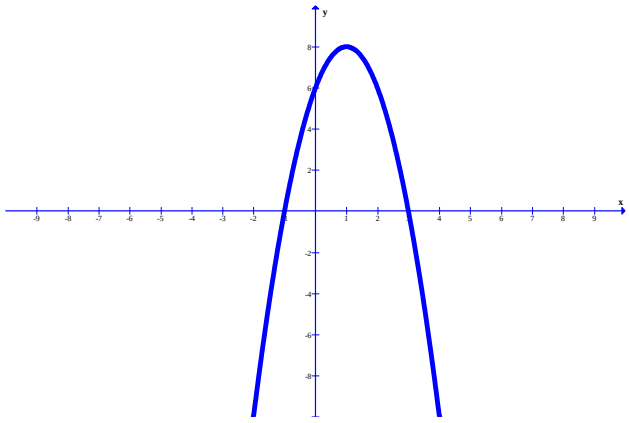

Find the zeros of the following quadratics by graphing.

58. $y = x^2 - 6x + 5$
59. $y = -x^2 + 3x + 10$
60. $y = x^2 + 6x + 9$
61. $f(x) = x^2 + x - 12$
62. $y = x^2 + 2x + 4$
63. $g(x) = 2x^2 + 5x + 2$
64. $y = -3x^2 + 11x + 4$