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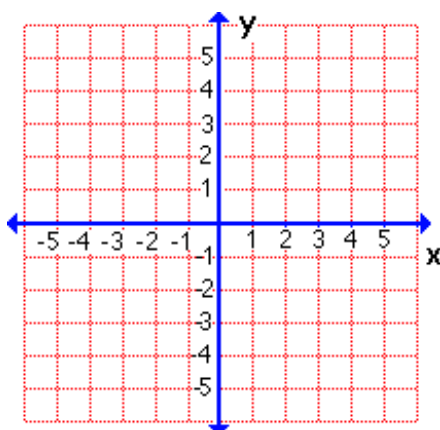
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Notes: Solving Quadratic Equations by Graphing

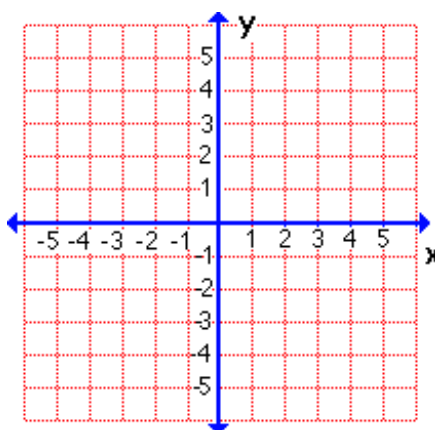
Quadratic Equation	
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The solutions of a quadratic equation are called the _____ of the equation. The roots of a quadratic equation can be found by graphing the related quadratic function $f(x) = ax^2 + bx + c$ and finding the x -intercepts or _____ of the function.

Example 1 Solve $x^2 + 4x + 3 = 0$ by graphing.

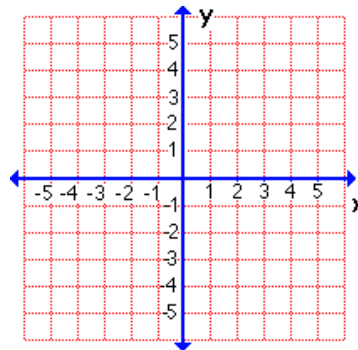


Example 2 Solve $x^2 - 6x + 9 = 0$ by graphing.



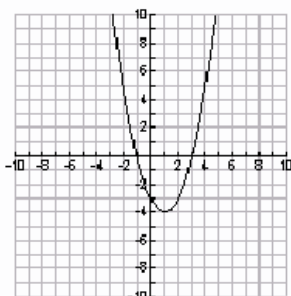
Example Solve $x^2 + 6x + 6 = 0$ by graphing. If integral roots cannot be found, estimate the roots by stating the consecutive integers between which the roots lie.

x	$f(x)$
-5	
-4	
-3	
-2	
-1	



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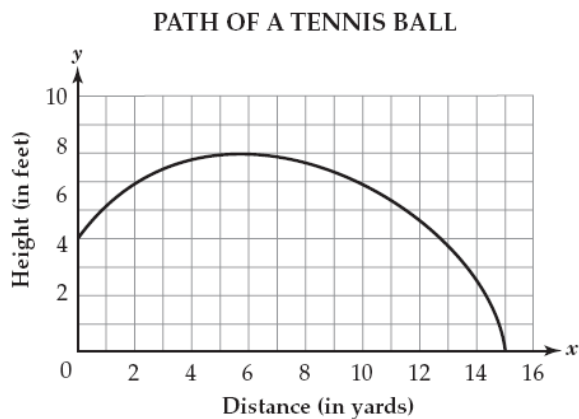
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Exit Card: Solving Quadratic Equations by GraphingThe graph below represents the function $f(x) = x^2 - 2x - 3$.

What are the zeroes of this function?

- A. -1 and 3 B. -3 and 0 C. -4 and 1 D. -3 and 5

The path of a tennis ball follows the curve given in the graph below.



How far does the ball travel horizontally before it hits the ground?

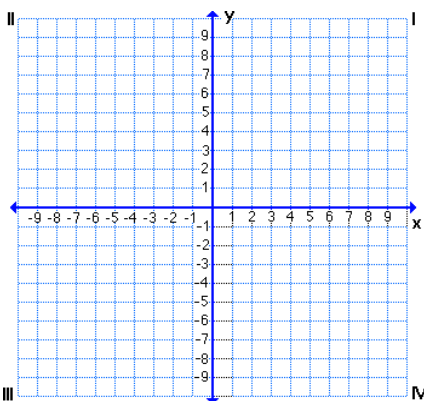
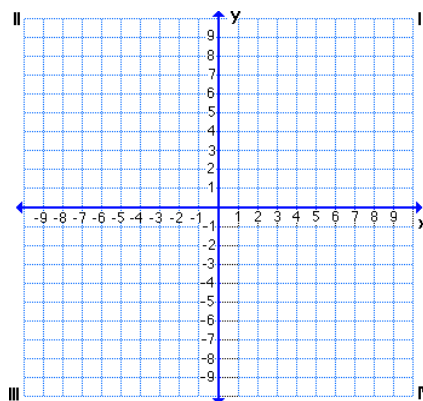
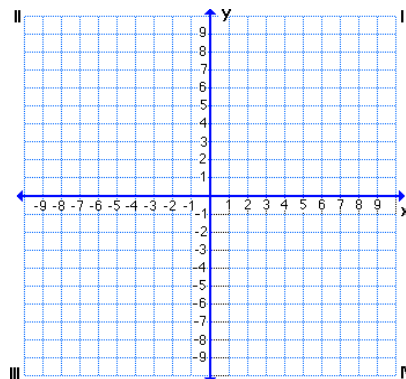
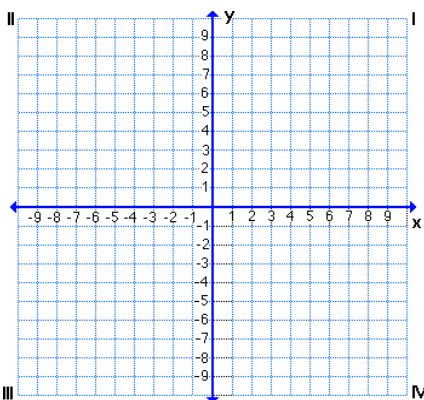
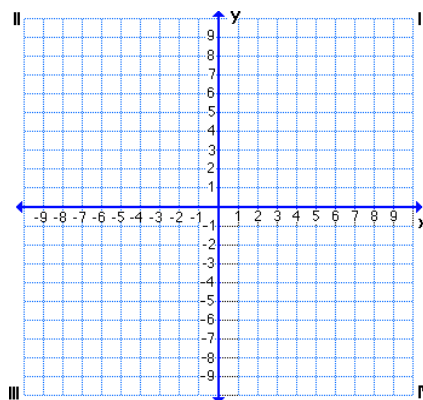
- F 4 yards
G 5 yards
H 8 yards
J 15 yards

BCR

- For what values of a does the function, $f(x) = a(x-1)^2 + 3$, have two x -intercepts? Use mathematics to justify your answer.

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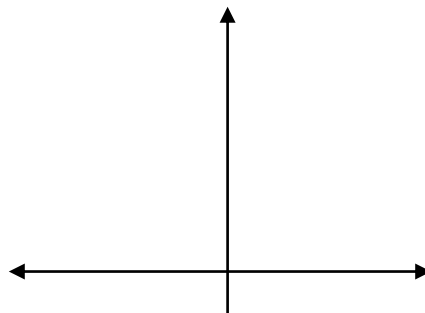
Homework: Pages 536 – 538 (11, 12, 17, 22, 23, 35 – 39, 49, 50)11. Solve $c^2 - 5c - 24 = 0$ by graphing.12. Solve $5n^2 + 2n + 6 = 0$ by graphing.17. The roots of a quadratic equation are -2 and -6 . The minimum point of the graph of its related function is at $(-4, -2)$. Sketch the graph of the function.22. Solve $n^2 - 7 = 0$ by graphing.23. Solve $2c^2 + 20c + 32 = 0$ by graphing.

An art gallery has walls that are sculptured with arches that can be represented by the quadratic function $f(x) = -x^2 - 4x + 12$, where x is in feet. The wall space under each arch is to be painted a different color from the arch itself.

35. Graph the quadratic function and determine its x -intercepts.

36. What is the length of the segment along the floor of each arch?

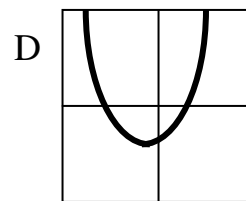
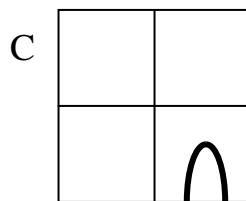
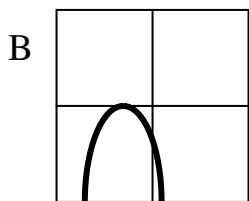
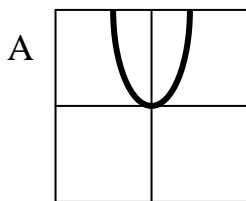
37. What is the height of the arch?



38. The formula $A = \frac{2}{3}bh$ can be used to estimate the area under a parabola. In this formula, A represents area, b represents the length of the base, and h represents the height. Calculate the area that needs to be painted.

39. How much would the paint for the walls under 12 arches cost if the paint is \$27 per gallon, the painter applies 2 coats, and the manufacturer states that each gallon will cover 200 square feet (you may not buy part of a gallon)?

49. Which graph represents a function whose corresponding quadratic equation has no solution?



50. What are the root(s) of the quadratic equation whose related function is graphed at the right?

A 2, -2

B 0

C 4

D 0, 4

