

Algebra 1 - Solving Quadratic Equations - Worksheet

Common Core A-REI.B.4a, A-REI.B.4b, A-SSE.B.3a, A-CED.A.1 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice quadratic equations (Common Core A-REI.B.4a, A-REI.B.4b, A-SSE.B.3a, and A-CED.A.1). You will solve quadratics by square roots, factoring, completing the square, and the quadratic formula, use the discriminant, and model area and projectile problems. The first problems are short skill checks, and the last six are word problems that need several steps. Work in order and show every line of your work, because a bare answer earns little credit on a test.

Algebra 1 · Common Core State Standards: **A-REI.B.4a, A-REI.B.4b, A-SSE.B.3a, A-CED.A.1**

Exercise 1 - Standard form

Write the quadratic equation $3x^2 - 5x = -2$ in standard form and identify a , b , and c .

Exercise 2 - Square roots

Solve $x^2 = 49$.

Exercise 3 - Isolate the square

Solve $x^2 - 5 = 20$.

Exercise 4 - Perfect square equals a number

Solve $(x+2)^2 = 25$.

Exercise 5 - Coefficient on the square

Solve $2x^2 = 18$.

Exercise 6 - Irrational solutions

Solve $x^2 = 20$. Write the answer in simplest radical form.

Exercise 7 - Factoring

Factor pairs of 6	Sum
1 and 6	7
2 and 3	5

Find the pair that sums to 5.

Solve $x^2+5x+6=0$ by factoring.

Exercise 8 - Factoring with negatives

Solve $x^2-7x+12=0$.

Exercise 9 - Do not divide by x

Solve $x^2=3x$.

Exercise 10 - Leading coefficient 2

Solve $2x^2+5x-3=0$ by factoring.

Exercise 11 - Complete the square

	x	3
x	x^2	$3x$
3	$3x$	9

Adding 9 completes the square.

Solve $x^2+6x=7$ by completing the square.

Exercise 12 - Complete the square again

Solve $x^2-4x-5=0$ by completing the square.

Exercise 13 - Quadratic formula

Solve $x^2+4x+1=0$ with the quadratic formula.

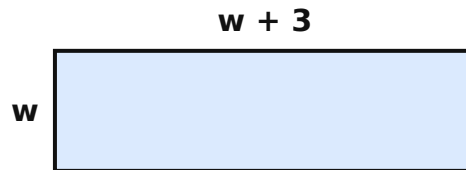
Exercise 14 - Formula with rational roots

Solve $2x^2 - 3x - 5 = 0$ with the quadratic formula.

Exercise 15 - Discriminant

Find the discriminant of each equation and state the number of real solutions: (a) $x^2 - 6x + 9 = 0$
(b) $2x^2 + x + 3 = 0$ (c) $x^2 - 3x - 4 = 0$.

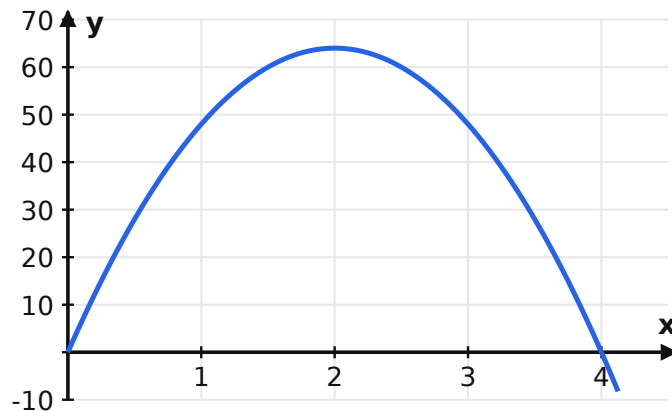
Exercise 16 - Rectangle area



Area 40 square feet.

The length of a rectangle is 3 feet more than its width w , and the area is 40 square feet. Write and solve an equation, then give the dimensions.

Exercise 17 - Ball at a given height



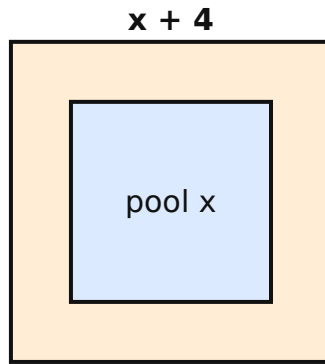
Height in feet at time t .

A ball's height in feet is $h = -16t^2 + 64t$. When is the ball 48 feet high?

Exercise 18 - Consecutive integers

The product of two consecutive positive integers is 72. Find them.

Exercise 19 - Square pool



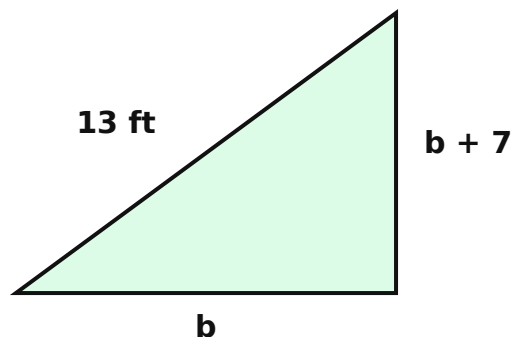
Pool and deck.

A square pool has side x feet. A 2-foot-wide deck surrounds it, so the total side is $x+4$ feet and the total area is 100 square feet. Find x .

Exercise 20 - Profit

A store's profit is $P = -2x^2 + 50x - 100$ dollars for x items. For which numbers of items is the profit \$200?

Exercise 21 - Ladder



A ladder against a wall.

A 13-foot ladder leans against a wall. The base is b feet from the wall and the top reaches $b+7$ feet up the wall. Find b and the height.