

Honors Algebra II

Notes Section 1.7 Complete the Square

EXAMPLE 1 Solve.

a) $x^2 - 8x + 16 = 25$

STEPS

b) $x^2 + 6x + 9 = 36$

1. Factor left side
2. Take $\sqrt{\quad}$ of Both Sides
3. Isolate X
4. Simplify/Solve

EXAMPLE 2 Find the value of c that make the expression a perfect square trinomial.

a) $x^2 + 16x$

b) $x^2 + 22x$

c) $x^2 - 9x$

EXAMPLE 3 Solve when a=1

$x^2 - 12x + 4 = 0$

STEPS

1. Isolate $ax^2 + bx$
2. $(b/2)^2$
3. Add result to both side of
4. Factor left side/Simplify right
5. Square root of both sides
6. Isolate x and simplify $\sqrt{\quad}$

equation
side

EXAMPLE 4 Solve when $a \neq 1$

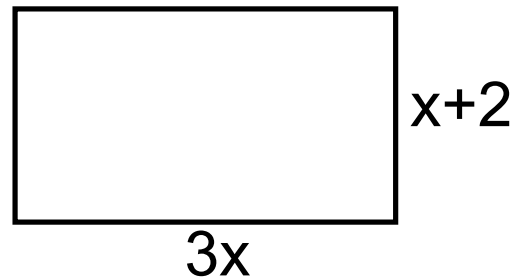
a) $2x^2 + 8x + 14 = 0$

STEPS

1. Divide to achieve $a = 1$
2. Isolate $ax^2 + bx$
3. $(b/2)^2$
4. Add result to both side of equation
5. Factor left side/Simplify right side
6. Square root of both sides
7. Isolate x and simplify ✓

b) $3x^2 + 12x - 18 = 0$

EXAMPLE 5 The area of the rectangle is 72 un^2 . What is the value of x ?



Vertex Form: _____

Vertex: _____

EXAMPLE 6 Write the quadratic function in vertex form.

a) $y = x^2 - 10x + 22$

b) $y = x^2 + 6x + 3$

EXAMPLE 7 Find the maximum height of a baseball given the following function: $y = -16t^2 + 96t + 3$