Algebra 2 w/ Trig

1.7 Complete the Square

 

 



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Example 1: Solve a Quadratic Equation by Finding Square Roots

**Solve** *x*2 – 8*x* + 16 = 25**.**

Example 2: Make a Perfect Square Trinomial

**Find the value of** *c***that makes** *x*2 + 16*x* + *c***a perfect square trinomial. Then write the expression as the square of a binomial.**

YOU TRY:

**Solve the equation by finding square roots.**

**1.** *x*2 + 6*x* + 9 = 36**.** 2. *x*2 – 10*x* + 25 = 1. **3.** *x*2 – 24*x* + 144 = 100**.**

**Find the value of *c* that makes the expression a perfect square trinomial. Then write the expression as the square of a binomial.**

4. *x*2 + 14*x* + *c* 5. *x2 + 22x + c* 6. *x*2 – 9*x* + *c*

Example 3: Solve *ax*2 + *bx* + *c* = 0 when *a* = 1 Example 4: Solve *ax*2 + *bx* + *c* = 0 when *a* $\ne $ 1

**Solve** *x*2 – 12*x* + 4 = 0 **by completing the square.** **Solve** 2*x*2 + 8*x* + 14 = 0 **by completing the square.**

Example 5: Multiple Choice!!!



YOU TRY:

7. Solve *x*2 + 6*x* + 4 = 0 by completing the square. 8. Solve *x*2 – 10*x* + 8 = 0 by completing the square.

9. Solve 2*n*2 – 4*n* – 14 = 0 by completing the square. 10. Solve 3*x*2 + 12*n* – 18 = 0 by completing the square.

11. 6*x*(*x* + 8) = 12 12. 4*p*(*p* – 2) = 100

Example 6: Write a Quadratic Function in Vertex Form

**Write** *y* = *x*2 – 10*x* + 22 **in vertex form. Then identify the vertex.**

Example 7: Find the maximum value of a quadratic function.

**The height** *y***(in feet) of a baseball** *t***seconds after it is hit is given by this function:**

*y* = –16*t*2 + 96*t* + 3

YOU TRY:

**13. Write** *y* = *x*2 – 8*x* + 17 **in vertex form. 14. Write *y* = *x*2 + 6*x* + 3 in vertex form.
Then identify the vertex. Then identify the vertex.**

**15. What if ? In example** 7**, suppose the height of the baseball is given by** *y* = – 16*t*2 + 80*t* + 2**. Find the maximum height of the baseball.**