Algebra 2 w/ Trig

1.3 Solving $x^{2}+bx+c=0$

Warm- Up:

 

 



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EXAMPLE 1: Factor Trinomials of the form $x^{2}+bx+c$

Factor the following expressions:

**a.** *x*2 – 9*x* + 20 **b.** *x*2 + 3*x* – 12

You Try:

**1.** *x*2 – 3*x* – 18 **2.** *n*2 – 3*n* + 9

EXAMPLE 2: Factor with Special Patterns

Factor the following expressions: YOU TRY:

**a.** *x*2 – 49 **3.** *x*2 – 9

**b.** *d* 2 + 12*d* + 36 **4.** *q*2 – 100

**c.** *z*2 – 26*z* + 169 **5.** *y*2 + 16*y* + 64

EXAMPLE 3: Finding the Roots of the Equation



Example 4: Use a Quadratic Equation as a Model

**A town has a nature preserve with a rectangular field that measures** 600 **meters by** 400 **meters. The town wants to double the area of the field by adding land as shown. Find the new dimensions of the field.**

YOU TRY:

**6. Solve the equation** *x*2 – *x* – 42 = 0. **7. What If ? In Example** 4**, suppose the field initially**

**measures** 1000 **meters by** 300 **meters. Find the new dimensions of the field.**

EXAMPLE 5: Finding the Zeros of a Quadratic Function Using Intercept Form

**Find the zeros of the function by rewriting the function in intercept form.**

**a.** *y* = *x*2 – *x* – 12 **b.** *y* = *x*2 + 12*x* + 36

YOU TRY:

**8.** *y* = *x*2 + 5*x* – 14 **9.** *y* = *x*2 – 7*x* – 30

KEEP GOING!!

**Factor the expression.**

**1.** *y*2 + 5*y* – 24

5. Find the zeros of *f*(*x*) = *x*2 + 14*x* +49.

6. The dimensions of a playground are 50 feet by 75 feet. You want to double its area by adding the same distance *x* to the length and width. Find *x* and the new dimensions of the playground.

**2.** *z*2 – 225

**3.**4*w*2 – 20*w +* 25

**4.** **Solve** *x*2 – 9*x* + 8 = 0