

## 4.3 Completing the Square

**Find the value of  $c$  that completes the square.**

1)  $x^2 + 16x + c$

2)  $x^2 - 28x + c$

3)  $x^2 + 24x + c$

4)  $y^2 - 34y + c$

5) What is the purpose of completing the square?

6) In the process of completing the square, why do we need to add our filled-in value to both sides of the equation?

**Solve each equation by completing the square.**

7)  $n^2 + 16n - 84 = -4$

8)  $r^2 - 10r + 18 = 9$

9)  $p^2 + 12p + 90 = 10$

10)  $k^2 + 20k + 93 = -3$

$$11) m^2 + 18m + 8 = -6$$

$$12) b^2 - 6b + 3 = -5$$

$$13) x^2 - 8x - 69 = -4$$

$$14) v^2 + 10v + 104 = 10$$

$$15) n^2 + 20n - 59 = 3$$

$$16) a^2 + 18a + 94 = -2$$

17) In which step of solving can you tell if you'll have rational, irrational, or imaginary solutions?

**Solve each equation by factoring.**

$$18) n^2 + 12 = -7n$$

$$19) m^2 + 40 = 13m$$

$$20) 5x^2 + 7x + 7 = 7$$

$$21) 5b^2 + 2b + 4 = 4$$