PAP Algebra II **Name** _____
3.13 – Completing the Square **Date** _____ **Period** _____

Factor: $x^2 + 8x + 16$ $4x^2 - 20x + 25$

Find the value of *c* that makes each trinomial a perfect square.

1. $x^2 - 12x + c$ **2.** $x^2 + 2x + c$ **3.** $x^2 - 8x + c$ **4.** $x^2 - 5x + c$ **5.** $x^2 + \frac{1}{4}x + c$

Change each equation to vertex form $\left(y = a(x-h)^2 + k\right)$ by completing the square and identify the vertex.

1. $y = x^2 + 6x + 8$ vertex:_____

2. $y = x^2 - 14x + 19$ vertex:_____

3. $y = x^2 - 5x + 2$ vertex:_____

4. $y = x^2 + 9x + 18$ vertex:_____

5. $y = 2x^2 + 8x - 3$ vertex:_____

6. $y = 3x^2 + x - 2$ vertex:_____

7. $y = x^2 + x - 5$ vertex:_____

8. $y = x^2 + 3x + 6$ vertex:_____

9. $y = x^2 + 16x - 7$ vertex:_____

10. $y = 2x^2 - 10x + 5$ vertex:_____

11. $y = 2x^2 + 5x + 6$ vertex:_____

12. $y = 7x^2 + 6x + 2$ vertex:_____

Find the value of c that makes each trinomial a perfect square.

13. $x^2 + 5x + c$

14. $x^2 - 16x + c$

15. $x^2 + x + c$

16. $x^2 - 28x + c$