Factoring Trinomials; Addition Method

$ax^2 + bx + c,\ a = 1$

Procedure:

1. **Find the factors of the constant, c**
2. **Find the factors of c whose sum is b**
3. **Rewrite the polynomial as factors**

Example $x^2 + 11x + 24$

1. Factors of 24 $\Longrightarrow$

2. Sum is 11

3. $(x + 8)(x + 3)$

24
24 1
12 2
8 3
6 4

Factor completely

1. $x^2 + 9x + 20$ $x^2 + 8x + 12$

2. $x^2 + 13x + 42$ $x^2 + 10x + 16$

3. $x^2 + 5x + 6$ $x^2 + 7x + 6$

4. $x^2 + 11x + 10$ $x^2 + 7x + 10$

5. $x^2 + 6x + 8$ $x^2 + 2x + 1$

6. $x^2 + 7x + 12$ $x^2 + 15x + 54$

7. $x^2 + 20x + 100$ $x^2 + 10x + 25$

8. $x^2 - 9x + 20$ $x^2 - 8x + 12$

9. $x^2 - 13x + 42$ $x^2 - 10x + 16$

10. $x^2 - 5x + 6$ $x^2 - 7x + 6$

11. $x^2 - 11x + 10$ $x^2 - 7x + 10$

12. $x^2 - 6x + 8$ $x^2 - 2x + 1$

13. $x^2 - 7x + 12$ $x^2 - 15x + 54$

14. $x^2 - 20x + 100$ $x^2 - 10x + 25$

15. $x^2 + x - 20$ $x^2 - 3x - 28$

16. $x^2 + 3x - 28$ $x^2 - 4x - 21$

17. $x^2 + 2x - 35$ $x^2 + x - 30$

18. $x^2 + 7x - 30$ $x^2 - 3x - 40$

19. $x^2 - 4x - 21$ $x^2 + 7x - 18$

20. $x^2 - 7x - 44$ $x^2 - 100$

21. The leading coefficient in all these trinomials is _____.

22. How is the last problem, $x^2 - 100$, different from all the other problems?

23. How are exercises 1 – 7 different from 8 – 14?

24. How are exercises 15 – 20 different from 1- 14?