 Name____________________________________

Day 1: Factoring Quadratics

Date________________ Period____

1) ___________________ is taking a quadratic expression and writing it in the form $(x+m)(x+n)$.

It is often referred to as undistributing.

Notice that in our quadratic expression:

The middle term is always _______ + ________.

The constant term is always _________ * ________.

Factor each completely.

2) $p^2 + 11p + 28$

3) $x^2 - 8x + 16$

4) $a^2 - 7a - 28$

5) $v^2 - v - 20$

6) $x^2 + 8x + 12$

7) $r^2 + 7r + 6$

8) $n^2 + 15n + 56$

9) $v^2 + 2v - 20$

10) $a^2 - 3a$

11) $r^2 - 9r$

12) This process only works if the Leading Coeffecient is 1. When we get a leading coeffecient that is not 1 we must get our leading coeffecient to be 1.

For example in the polynomial $5x^2 + 25x + 30$ the leading coefficient is a _____, so can we divide 5 from all of the terms?

In the resulting quadratic expression all three terms are divisible by 5, so we need to "undistribute" that 5 before we factor the remaining expression.

Factor each completely.

13) $5m^2 + 75m + 280$

14) $4x^2 - 8x - 32$

15) $-6r^2 - 42r + 48$

16) $-3x^2 - 18x + 120$

17) $-2r^2 + 10r + 72$

18) $-x^2 + 9x - 20$

19) $2v^2 + 12v + 18$

20) $3x^2 - 30x + 75$

Special Cases

21) Multiply $(x+2)(x-2)$

Multiply $(x+10)(x-10)$

What patterns do you notice?

Difference of Squares

22) If you have to factor any quadratic in the form $a^2 - b^2$ it will always factor to be $(a+b)(a-b)$.

Factor each completely.

23) $k^2 - 1$

24) $n^2 - 16$

25) $a^2 - 25$

26) $v^2 - 4$

27) $45a^2 - 20$

28) $16x^2 - 100$

29) $12n^2 - 27$

30) $4r^2 - 25$

31) $49r^2 - 25$

32) $121b^2 - 4$