

Name \_\_\_\_\_ Period \_\_\_\_ Date \_\_\_\_\_

### Factoring Polynomials with Coefficients in Front of the $x^2$ Term

Sometimes when there is a coefficient in front of the  $x^2$  term, it is possible to factor out the *GCF* and then you can factor the remaining polynomial as we have been doing in class.

|          |                   |                             |
|----------|-------------------|-----------------------------|
| Example: | $2x^2 + 10x + 12$ |                             |
|          | $2(x^2 + 5x + 6)$ | Factor out <i>GCF</i>       |
|          | $2(x + 2)(x + 3)$ | Factor remaining polynomial |

Factor the following expressions.

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

2.  $3x^2 + 9x - 30$

3.  $2x^2 + 12x - 80$

4.  $5x^2 + 15x + 10$

5.  $4x^2 + 20x + 16$

6.  $5x^2 + 20x - 15$

7.  $3x^2 - 18x + 24$

8.  $4x^2 - 28x - 32$

9.  $6x^2 - 36x + 30$

10.  $8x^2 - 8x - 48$

Factoring Polynomials

Name:

Period:



1)  $12x^2 - 36x$



2)  $4x^2 - 1$



3)  $4x^2 - 4x + 1$



4)  $4x^2 + 12x$



5)  $4x^2 - 23x + 15$



6)  $12x^2 - 27x - 27$



7)  $4x^2 + 13x + 10$



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



9)  $4x^2 + 19x + 12$



10)  $12x^2 + 36x + 27$



11)  $8x^2 + 14x + 40$



12)  $4x^2 + 15x - 25$



13)  $12x^2 + 48x$



14)  $4x^2 - x + 4$



15)  $8x^2 - 46x + 30$



16)  $8x^2 + 26x + 20$

|   |                    |
|---|--------------------|
| A | $3(4x + 3)(x - 3)$ |
| B | $(4x - 3)(x - 5)$  |
| C | $(2x - 1)(2x + 1)$ |
| D | $(4x - 5)(x + 5)$  |
| E | $2(4x - 3)(x - 5)$ |
| F | $2(4x + 5)(x + 2)$ |
| G | $(4x + 3)(x + 4)$  |
| H | $12x(x - 3)$       |

|   |                     |
|---|---------------------|
| I | $4x(x + 3)$         |
| J | $(4x + 5)(x + 2)$   |
| K | $3(2x + 3)^2$       |
| L | $12x(x + 4)$        |
| M | $2(4x^2 + 7x + 20)$ |
| N | not factorable      |
| O | $(2x - 1)^2$        |
| P | $2(4x - 3)(x + 1)$  |