

8.1 - Can you factor these by Greatest Common Factor?

1.  $4x - 36$

$4(x-9)$

2.  $14a^2b^3 - 28ab^5$

$14ab^3(a-2b^2)$

3.  $-c^3 - 8c$

$-c(c^2+8)$   
 $c(c^2-8)$

4.  $7y^2 - 8xy - 9y$

$y(7y-8x-9)$

8.2 - Can you factor a Trinomial *without* a leading coefficient?

5.  $w^2 - 16w - 36$

$(w-18)(w+2)$

6.  $x^2 + 3x - 18$

$(x+6)(x-3)$

7.  $y^2 - 35y + 300$

$(y-20)(y-15)$

8.  $z^2 + 9z - 32$

$z -$

8.3 - Can you factor a Trinomial *with* a leading coefficient?

9.  $3x^2 + 8x + 5$

$3x^2 + 3x + 5x + 5$   
 $3x(x+1) + 5(x+1)$   
 $(3x+5)(x+1)$

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

$(2x+1)(3x-5)$

11.  $2x^2 - x - 21$

$(2x-7)(x+3)$

8.4-5 - Can you factor these other cases?

12.  $x^2 - 25$

$(x-5)(x+5)$

13.  $ab - 3a + 3b - b^2$

$a(b-3) - b(3-b)$   
 $(a-b)(b-3)$

14.  $12x^3 + 2x^2 - 18x - 3$

$2x^2(6x+1) - 3(6x+1)$   
 $(6x+1)(2x^2-3)$

15.  $4w^2 - 100$

$4(w^2-25)$   
 $4(w-5)(w+5)$

8.6 - Can you figure out how to factor any given polynomial by putting all the steps together?

16.  $x^2 - 8x + 16$

$(x-4)(x-4)$

17.  $4w^2 - 32w + 60$

$4(w^2-8w+15)$   
 $4(w-5)(w-3)$

18.  $15m^4n^2 - 20m^3n^2 + 45m^2n$

$5m^2n(3m^2n-4mn+9)$

19.  $3z^2 + 27$

$3(z^2+9)$

20.  $12x^3y + 10x^2y - 8xy$

$-24$   
 $2xy(6x^2+5x-4)$   
 $6x^2+8x-3x-4$   
 $2x(3x+4) - 1(3x+4)$   
 $2xy(2x-1)(3x+4)$

21.  $24x^3 - x^2 - 10x$

$240$   
 $x(24x^2-x-10)$   
 $24x^2-16x+15x-10$   
 $z 120$   
 $z 60$   
 $3x(3x-2) - 5(3x-2)$   
 $x(8x+5)(3x-2)$

22.  $10w^2 - 9w + 6$

60  
6 10  
3 20  
5 12  
2 30  
4 15  
Prime

23.  $20z^2 - 5$

$5(4z^2-1)$   
 $5(2z+1)(2z-1)$

\*24.  $x^4 - 13x^2 + 36$

$(x^2-9)(x^2-4)$   
 $(x+3)(x-3)(x+2)(x-2)$