

Factoring Trinomials when $a = 1$

1.) $x^2 + 4x + 3$
 $a=1$ $b=4$ $c=3$
 $(x+1)(x+3)$

3	3
1	4

2.) $x^2 - 5x - 14$ $a=1$ $b=-5$ $c=-14$
 $(x+2)(x-7)$

-14	-7
+2	-5

3.) $a^2 - 10a + 21$ $a=1$ $b=-10$ $c=21$
 $(a-3)(a-7)$

21	-7
-3	-10

4.) $c^2 + 5c - 36$ $a=1$ $b=5$ $c=-36$
 $(c+9)(c-4)$

-36	-4
9	5

5.) $2p^2 + 8p - 24$ Factor GCF first
 $2(p^2 + 4p - 12)$ $a=1$ $b=4$ $c=-12$
 $2(p+6)(p-2)$

-12	-2
6	4

6.) $3b^2 - 21b + 36$ Factor GCF first
 $3(b^2 - 7b + 12)$
 $3(b-3)(b-4)$

12	-4
-3	-7

7.) $x^2 - 12x + 36$ $a=1$ $b=-12$ $c=36$
 $(x-6)(x-6)$
 $= (x-6)^2$

36	-6
-6	-12

8.) $t^2 - t - 56$ $a=1$ $b=-1$ $c=-56$
 $(t-8)(t+7)$

-56	7
-8	-1

9.) $r^2 + 23r + 22$ $a=1$ $b=23$ $c=22$
 $(r+22)(r+1)$

22	1
22	23

10.) $4a^2 + 12a - 40$ Factor GCF first
 $4(a^2 + 3a - 10)$ $a=1$ $b=3$ $c=-10$
 $4(a+5)(a-2)$

-10	-2
5	3

Name: _____

Keys

Algebra II

Period: _____

Factoring Trinomials when $a \neq 1$

1.) $3x^2 - 8x + 4$ $a=3$ $b=-8$ $c=4$

$(3x^2 - 2x)(-6x + 4)$

$x(3x-2) - 2(3x-2)$

$(x-2)(3x-2)$

~~$\begin{array}{r} 12 \\ -2 \quad -6 \\ -8 \end{array}$~~

2.) $6x^2 - 5x + 6$ $a=6$ $b=-5$ $c=6$

$(6x^2 - 9x)(4x - 6)$

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

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

~~$\begin{array}{r} -36 \\ -9 \quad 4 \\ -5 \end{array}$~~

3.) $2b^2 + 9b + 10$ $a=2$ $b=9$ $c=10$

$(2b^2 + 4b)(5b + 10)$

$2b(b+2) + 5(b+2)$

$(2b+5)(b+2)$

~~$\begin{array}{r} 20 \\ 4 \quad 5 \\ 9 \end{array}$~~

4.) $5r^2 - 17r + 6$

$(5r^2 - 2r)(-15r + 6)$

$r(5r-2) - 3(5r-2)$

$(r-3)(5r-2)$

~~$\begin{array}{r} 30 \\ -2 \quad -15 \\ -17 \end{array}$~~

5.) $4c^2 + 10c - 6$

$(4c^2 + 12c)(-2c - 6)$

$4c(c+3) - 2(c+3)$

$(4c-2)(c+3)$

~~$\begin{array}{r} -24 \\ 12 \quad -2 \\ 10 \end{array}$~~

6.) $10t^2 + 17t - 6$

$(10t^2 + 20t)(-3t - 6)$

$10t(t+2) - 3(t+2)$

$(10t-3)(t+2)$

~~$\begin{array}{r} -60 \\ 20 \quad -3 \\ 17 \end{array}$~~

7.) $8x^2 - 26x + 6$

$(8x^2 - 2x)(-24x + 6)$

$2x(4x-1) - 6(4x-1)$

$(2x-6)(4x-1)$

~~$\begin{array}{r} 48 \\ -2 \quad -24 \\ -26 \end{array}$~~

8.) $3x^2 + 14x + 15$

$(3x^2 + 9x)(5x + 15)$

$3x(x+3) + 5(x+3)$

$(3x+5)(x+3)$

~~$\begin{array}{r} 45 \\ 9 \quad 5 \\ 14 \end{array}$~~

9.) $7a^2 - 12a - 4$

$(7a^2 - 14a)(2a - 4)$

$7a(a-2) + 2(a-2)$

$(7a+2)(a-2)$

~~$\begin{array}{r} -28 \\ -14 \quad 2 \\ -12 \end{array}$~~

10.) $9c^2 + 19c + 2$

$(9c^2 + c)(18c + 2)$

$c(9c+1) + 2(9c+1)$

$(c+2)(9c+1)$

~~$\begin{array}{r} 18 \\ 1 \quad 18 \\ 19 \end{array}$~~