

## Solving Equations Involving Hard Trinomials

### a) Type 1

$3y^2 + 24y + 45 = 0$	$2x^2 + 34x + 132 = 0$	$2a^2 + 7a + 5 = 0$
1. $3(y^2 + 8y + 15) = 0$	2. $2(x^2 + 17x + 66) = 0$	3. $(2a + 5)(a + 1) = 0$
$3(y + 5)(y + 3) = 0$	$2(x + 11)(x + 6) = 0$	$\{-5/2, -1\}$
$\{-5, -3\}$	$\{-11, -6\}$	

$3t^2 + 14t + 15 = 0$	$3p^2 = -40p - 48$
4. $(3t + 5)(t + 3) = 0$	5. $3p^2 + 40p + 48 = 0$
$\{-3, -5/3\}$	$(3p + 4)(p + 12) = 0$
	$\{-12, -4/3\}$

### b) Type 2

$2k^2 - 24k + 70 = 0$	$4p^2 - 68p + 168 = 0$	$2c^2 - 23c + 11 = 0$
1. $2(k^2 - 12k + 35) = 0$	2. $4(p^2 - 17p + 42) = 0$	3. $(2c - 1)(c - 11) = 0$
$2(k - 7)(k - 5) = 0$	$4(p - 14)(p - 3) = 0$	$\{1/2, 11\}$
$\{5, 7\}$	$\{3, 14\}$	

$25y^2 - 20y + 3 = 0$	$14p^2 - 23p = -8$
4. $(5y - 3)(5y - 1) = 0$	5. $14p^2 - 23p + 8 = 0$
$\{3/5, 1/5\}$	$(7p - 8)(2p - 1) = 0$
	$\{1/2, 8/7\}$

### c) Type 3

$5w^2 + 45w - 210 = 0$	$2y^2 + 4y - 96 = 0$	$3r^2 + 20r - 7 = 0$
1. $5(w^2 + 9w - 42) = 0$	2. $2(y^2 + 2y - 48) = 0$	3. $(3r - 1)(r + 7) = 0$
<i>no solution</i>	$2(y + 8)(y - 6) = 0$	$\{1/3, -7\}$
	$\{-8, 6\}$	

$$12y^2 + 7y - 5 = 0$$

4.  $(12y - 5)(y + 1) = 0$   
 $\{-1, 5/12\}$

$$42h^2 = -h + 5$$

5.  $42h^2 + h - 5 = 0$   
 $(14h + 5)(3h - 1) = 0$   
 $\{-5/14, 1/3\}$

d) Type 4

1.  $5y^2 - 20y - 60 = 0$   
 $5(y^2 - 4y - 12) = 0$   
 $5(y - 6)(y + 2) = 0$   
 $\{-2, 6\}$

2.  $5x^2 - 64x - 13 = 0$   
 $(5x + 1)(x - 13) = 0$   
 $\{-1/5, 13\}$

3.  $3x^2 - x - 2 = 0$   
 $(3x + 2)(x - 1) = 0$   
 $\{-2/3, 1\}$

4.  $18a^2 - 5a - 7 = 0$   
 $(9a - 7)(2a + 1) = 0$   
 $\{-1/2, 7/9\}$

5.  $40c^2 = 11c + 2$   
 $40c^2 - 11c - 2 = 0$   
 $(8c + 1)(5c - 2) = 0$   
 $\{-1/8, 2/5\}$