

## Factoring Any Method Round Table

Factor each completely.

1)  $25r^2 - 4$

$$(5r-2)(5r+2)$$

2)  $5x^2 - 75x + 250$

$$5(x^2 - 15x + 50)$$
$$5(x-10)(x-5)$$

3)  $v^2 + 14v + 48$

$$(v+6)(v+8)$$

4)  $54n^2 - 276n + 240$

$$6(9n^2 - 46n + 40)$$

$$(9n^2 - 10n - 36n + 40)$$
$$n(9n-10) - 4(9n-10)$$

5)  $6x^2 - 54x$

$$6x(x-9)$$

6)  $5b^2 - 20$

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

$$6(n-4)(9n-10)$$

Solve each equation by factoring.

7)  $n^2 - 7n = 0$

$$n(n-7) = 0$$

$$n=0 \quad n-7=0$$

$$n=0, 7$$

9)  $n^2 = -6n - 5$

$$n^2 + 6n + 5 = 0$$

$$n^2 + 6n + 5 = 0$$

$$\begin{matrix} \uparrow & \uparrow \\ \text{add} & \text{mult} \end{matrix}$$

$$(n+5)(n+1) = 0$$

$$n+5=0 \quad n+1=0$$

$$n = -5, -1$$

8)  $5r^2 + 32r - 21 = 0$

$$-105 \leftarrow \text{mult}$$

$$(5r^2 + 35r - 3r - 21) = 0$$

$$5r(r+7) - 3(r+7) = 0$$

$$(5r-3)(r+7) = 0$$

10)  $20x^2 - 4x = 16$

$$-16 \quad -16$$

$$20x^2 - 4x - 16 = 0$$

$$4(5x^2 - x - 4) = 0$$

$$-20$$

$$(5x^2 - 5x + 4x - 4) = 0$$

$$5x^2 - (x-1) + 4(x-1) = 0$$

$$4(5x+4)(x-1) = 0 \quad x = -4/5, 1$$

$$5r-3=0 \quad r+7=0$$

$$+3 \quad +3 \quad -7 \quad -7$$

$$5r=3$$

$$r = 3/5$$

$$r = 3/5, -7$$

Factor each completely.

11)  $3b^2 + 6b - 9$

$$3(b^2 + 2b - 3)$$
$$3(b+3)(b-1)$$

12)  $-x^2 + 2x$

$$-x(x-2)$$

13)  $9n^2 - 12n + 4$

$$(9n^2 - 6n) - (6n - 4)$$
$$3n(3n-2) - 2(3n-2)$$
$$(3n-2)(3n-2)$$

Solve each equation by factoring.

15)  $(v+7)(v+2) = 0$

$$-7, -2$$

14)  $8p^2 - 45p - 18$

$\leftarrow$  add  
 $\leftarrow$  mult  
 $-144$

$$(8p^2 - 48p) + (3p - 18)$$
$$8p(p-6) + 3(p-6)$$
$$(8p+3)(p-6)$$

16)  $x^2 + 3x - 28 = 0$

$$(x+7)(x-4)$$

$$-7, 4$$

17)  $7k^2 - 2k = 0$

$$k(7k-2) = 0$$
$$k=0 \quad 7k-2=0$$
$$+2 \quad +2$$
$$7k = \frac{2}{7}$$
$$k = 0, \frac{2}{7}$$

18)  $x^2 - 8x + 9 = -7$

$$+7 \quad +7$$
$$x^2 - 8x + 16 = 0$$

$\uparrow$  add       $\uparrow$  mult

$$(x-4)(x-4) = 0$$
$$x-4=0 \quad x-4=0$$
$$x=4$$