

Zero-Product Property

Example 1:

Solve the equation.
 $(y - 2)(5y - 4) = 0$

Example 2:

Solve the equation.
 $2a^2 + 26a = 0$

Example 3:

Solve the equation.
 $m^2 - 10m + 21 = 0$

Example 4:

Solve the equation.
 $10b^2 - 14b + 4 = 0$

Example 5:

Solve the equation.
 $4h^2 - 36 = 0$

Example 6:

Solve the equation.
 $x^3 + x^2 - 4x - 4 = 0.$

Zero-Product
Property

Solve the equation $(x-2)(5x-4) = 0$

additive inverse $(2,0)$

Solve $x-2=0$
 $+2+2$
 $x=2$

$5x-4=0$
 $+4+4$
 $\frac{5x}{5} = \frac{4}{5}$
 $x = \frac{4}{5}$
 $(\frac{4}{5}, 0)$

Solve the equation $m^2 - 10m + 21 = 0$

$(m-7)(m-3) = 0$

additive inverse $(7,0) (3,0)$

Solve the equation $2a^2 + 26a = 0$

constant = y-intercept = $(0,0)$ = x-int too!

$2a(a+13) = 0$

$2a=0$
 $\frac{2a}{2} = \frac{0}{2}$
 $a=0$
 $(-13,0)$

Solve the equation $10b^2 - 14b + 4 = 0$

$2(5b^2 - 7b + 2) = 0$

$5b^2$	-7	2	b	$5b^2 - 2b$
$-2 \cdot 5$	-7	-1	$-5b$	2

$2(5b-2)(b-1) = 0$

$5b-2=0$
 $5b=2$
 $b = \frac{2}{5}$

$(\frac{2}{5}, 0) (1,0)$

Solve the equation $x^3 + x^2 - 4x - 4 = 0$

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

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

$x^2-4=0$
 $+4+4$
 $x+1=0$
 $-1-1$
 $x = -1$

$\sqrt{x^2 = \pm\sqrt{4}}$
 $x = \pm 2$

$(-2,0) (-1,0) (2,0)$

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

$(x+2)(x-2)(x+1) = 0$
 additive inverse
 $(-2,0) (2,0) (-1,0)$

Solve the equation $4n^2 - 36 = 0$

$4n^2 - 36 = 0$
 $+36+36$

$4n^2 - 36 = 0$

$4(n^2 - 9) = 0$

$4(n-3)(n+3) = 0$

$(3,0) (-3,0)$

$\sqrt{n^2 = \pm\sqrt{9}}$

$n = \pm 3$

$(-3,0) (3,0)$