What you will learn about:
Solve by Factoring

Zero Product Property
$a \cdot b = 0$, then either $a = 0$ or $b = 0$ or both.

Solve: $(x+1)(x-4) = 0$

$x+1=0$ | $x-4=0$

$x=-1$ | $x=4$

Solve: $(5n-2)(6n-1) = 0$

$5n-2=0$ | $6n-1=0$

$5n=2$ | $6n=1$

$n=\frac{2}{5}$ | $n=\frac{1}{6}$

~~Solve: $(x+1)(x-4) = 0$~~

Solve: $(4p+3)(4p-3) = 0$

$4p+3=0$ $4p-3=0$

$4p=-3$ $4p=3$

$p=-3/4$ $p=\frac{3}{4}$

Solve: $(x+1)(x-4) = 0$

$x=-1$ $x=4$

Solve: $3p(10p+7) = 0$

$3p=0$ | $10p+7=0$

$p=0$ $10p=-7$

$p=-\frac{7}{10}$

Solve: $w(2w+3)=0$

$w=0 \quad 2w+3=0$

$2w=-3$

$w=\frac{-3}{2}$

Solve: $x^2+2x-8=0$

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

$x+4=0 \quad x-2=0$

$x=-4 \quad x=2$

Solve: $b^2+9b+14=0$

$(b+7)(b+2)=0$

$b+7=0 \quad b+2=0$

$b=-7 \quad b=-2$

Solve: $2y^2=13y+45$

$2y^2-13y-45=0$

$(2y+5)(y-9)=0$

$2y+5=0 \quad y-9=0$

$y=-\frac{5}{2} \quad y=9$

$\frac{-90}{-18\cdot 5}$

$(2y^2-18y)+(5y-45)$

$2y(y-9)+5(y-9)$

$(2y+5)(y-9)$

$\frac{24}{-6\cdot -4}$

$(3c^2-6c)(-4c+8)$

Solve: $3c^2=10c-8$

$3c^2-10c+8=0$

$(3c-4)(c-2)=0$

$3c-4=0 \quad c-2=0$

$c=\frac{4}{3} \quad c=2$

Solve: $5x^2-13x=7x$

$5x^2-20x=0$

$5x(x-4)=0$

$5x=0 \quad x-4=0$

$x=0 \quad x=4$

Solve: $144q^2 = 25$

$144q^2 - 25 = 0$

$(12q-5)(12q+5)=0$

$12q-5=0 \quad 12q+5=0$

$q = \frac{5}{12}, -\frac{5}{12}$

$q = \pm \frac{5}{12}$

Solve: $36x^2 = 121$

$36x^2 - 121 = 0$

$(6x-11)(6x+11)=0$

$x = \pm \frac{11}{6}$

Solve: ~~$2y^2 = 13y + 45$~~

24

$-12 \quad -2$

Solve: $(3x-8)(x-1) = 3x$

$3x^2 - 3x - 8x + 8 = 3x$

$3x^2 - 11x + 8 = 3x$

$-3x \quad -3x$

$3x^2 - 14x + 8 = 0$

$3x^2 - 14x + 8 = 0$

$(3x-2)(x-4)=0$

$3x-2=0 \quad x-4=0$

$x = \frac{2}{3} \quad x = 4$

6

$-2 \cdot -3$

Solve: $(2m+1)(m+3) = 12m$

$2m^2 + 7m + 3 = 12m$

$-12m \quad -12m$

$2m^2 - 5m + 3 = 0$

$2m^2 - 5m + 3 = 0$

$(2m-3)(m-1)=0$

$2m-3=0 \quad m-1=0$

$m = \frac{3}{2} \quad m = 1$

$(2m^2 - 2m)(-3m+3)$

$2m(m-1) - 3(m-1)$

$(2m-3)(m-1)$

Solve: $(k+1)(k-1) = 8$

$k^2 - 1 = 8$

$k^2 - 9 = 0$

$(k-3)(k+3)=0$

$k = 3 \quad k = -3$

Solve: $8x^3 = 24x^2 - 18x$

$8x^3 - 24x^2 + 18x = 0$

$2x(4x^2 - 12x + 9) = 0$

$2x(2x-3)(2x-3) = 0$

$2x=0 \quad 2x-3=0 \quad 2x-3=0$

$x=0 \quad x=\frac{3}{2} \quad x=\frac{3}{2}$

Solve: $16y^2 = 32y^3 + 2y$

$32y^3 - 16y^2 + 2y = 0$

$2y(16y^2 - 8y + 1) = 0$

$2y(4y-1)(4y-1) = 0$

$2y=0 \quad 4y-1=0 \quad 4y-1=0$

$y=0 \quad y=\frac{1}{4} \quad y=\frac{1}{4}$

Solve: $4x^2 = 16x + 84$

$4x^2 - 16x - 84 = 0$

$\frac{4(x^2-4x-21)}{4} = \frac{0}{4}$

$x^2 - 4x - 21 = 0$

$(x-7)(x+3) = 0$

$x=7 \quad x=-3$

Solve: $18a^2 - 30 = -33a$

$18a^2 + 33a - 30 = 0$

$6a^2 + 11a - 10 = 0$ → multiply

$(3a-2)(2a+5) = 0$

$3a-2=0 \quad 2a+5=0$

$a=\frac{2}{3} \quad a=-\frac{5}{2}$

$(3a-2)(2a+5)$

Find the product of two consecutive ingtegers is 132. Find the integers.

$1^{st} - x$

$2^{nd} - x+1$

$x(x+1) = 132$

$x^2 + x = 132$

$x^2 + x - 132 = 0$

$(x+12)(x-11) = 0$

$x=-12 \quad x=11$

$11, 12 \quad -12, -11$

The product of two consecutive integers is 240. Find the integers.

$x(x+1) = 240$

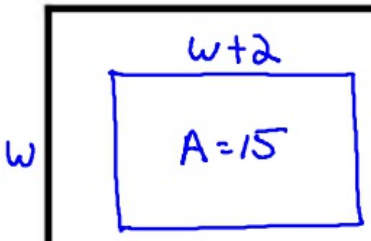
$x^2 + x = 240$

$x^2 + x - 240 = 0$

15, 16 −15, −16

$(x+16)(x-15) = 0$

$x=-16 \quad x=15$



A rectangluar garden as an area of 15 square feet. The length of the garden is two feet more than the width. Find the length and width of the garden.

$w(w+2)=15$

$w^2+2w=15$

$w^2+2w-15=0$

$(w+5)(w-3)=0$

~~$w=-5$~~ $w=3$

$w=3$ $l=5$

A rectangluar sign has an area of 30 square feet. The length of the sign is one foot more than the width. Find the length and width of the sign.

$w(w+1)=30$

$w^2+w-30=0$

$(w+6)(w-5)=0$

~~$w=-6$~~ $w=5$

$w=5$

$l=6$

$3^2+4^2=5^2$

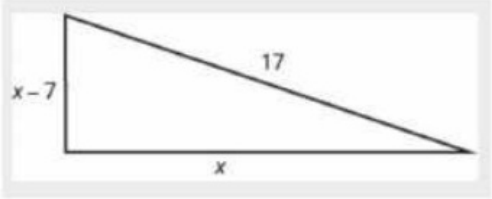
$3+4=5$

$a^2+b^2=c^2$

$c=\sqrt{a^2+b^2}$

$=a+b$

Justine wants to put a deck in the corner of her yard in the shape of a right triangle, as shown below. The hypotenuse will be 17 feet long. The length of one side will be 7 feet less thatn the length of the other side. The the lengths of the sides of the deck.



15, 8, 17

$x^2+(x-7)^2=17^2$

$x^2+x^2-14x+49=289$

$2x^2-14x-240=0$

$x^2-7x-120=0$

$(x-15)(x+8)=0$

$x=15$ ~~$x=-8$~~

A boat's sail is a right triangle. The length of one side of the sail is 7 feet more than the other side. The hypotenuse is 13 feet. Find the lengths of the two sides of the sail.

	A boat's sail is a right triangle. The length of one side of the sail is 7 feet more than the other side. The hypotenuse is 13 feet. Find the lengths of the two sides of the sail. A meditation garden is in the shape of a right triangle, with one leg 7 feet long. The length of the hypotenuse is one more than the length of one of the other legs. Find the lengths of the hypotenuse and the other leg. V.L. 7.6 Due monday