

1) Factor completely or state 'prime'.

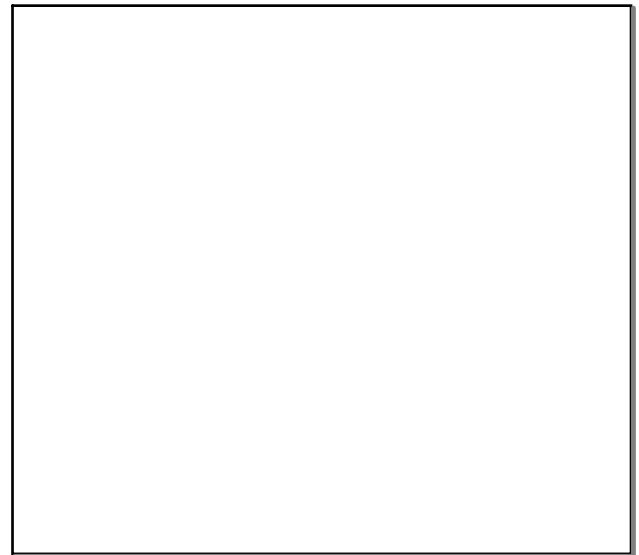
$$3x^2 - 8x - 16$$

$p = -48$ $q = -8$

1, -48	$1 + (-48) = -47$
2, -24	$2 + (-24) = -22$
3, -16	$3 + (-16) = -13$
4, -12	$4 + (-12) = -8$
6, -8	

$3x^2 + 4x - 12x - 16$
 $x(3x+4) - 4(3x+4)$
 $(3x+4)(x-4)$

Sep 26-7:58 AM



Sep 26-8:01 AM

Solving Quadratics by Quadratic Formula

Oct 5-9:39 AM

Quadratic Formula $ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$b^2 - 4ac$ Discriminant

$\pm$ Means that there are 2 solutions

Discriminant: $b^2 - 4ac$

This tells what type of solutions the equation is going to have. (2 real, 1 real, or 2 imaginary)

Sep 18-4:14 PM

The Quadratic Formula SOLVES the equation!

The discriminant indicates how many solutions there will be.....

- * If the discriminant is POSITIVE = 2 real solutions $\pm$ $2 + \sqrt{3}$ $2 - \sqrt{3}$
- * If the discriminant is ZERO = 1 real solution $+$
- * If the discriminant is NEGATIVE = 2 imaginary solutions $\pm i$

$a^2 - 4ac = +$

Oct 5-9:59 AM

Tell how many solutions each problem has, then find the solution(s).

$a=2$ $b=2$ $c=-12$

Ex1) $2m^2 + 2m - 12 = 0$

a) Discriminant $b^2 - 4ac = (2)^2 - 4(2)(-12) = 100$ 2 real!

b) $x = \frac{-2 \pm \sqrt{(2)^2 - 4(2)(-12)}}{2(2)}$

$x = \frac{-2 \pm \sqrt{100}}{4}$

$x = \frac{-2 \pm 10}{4}$

$x = \frac{-2 + 10}{4}$ $x = \frac{-2 - 10}{4}$

$x = \frac{8}{4}$ $x = \frac{-12}{4}$

$x = 2$ $x = -3$

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Ex2) $3k^2 + 2 = 8k$

$a=3$ $b=-8k$ $c=2$

$3k^2 - 8k + 2 = 0$

$X = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(3)(2)}}{2(3)}$

$X = \frac{8 \pm \sqrt{40}}{6}$

$X = \frac{8 \pm 2\sqrt{10}}{6}$

$X = \frac{4 \pm \sqrt{10}}{3}$

$X = \frac{4 + \sqrt{10}}{3}$ $X = \frac{4 - \sqrt{10}}{3}$

$X = 2.58$ $X = 2.71$

Discriminant
 $b^2 - 4ac$
 $(-8)^2 - 4(3)(2)$
 $= 40$
 2 real

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Ex3) $9x^2 + 12x + 4 = 0$

$X = \frac{-12 \pm \sqrt{(12)^2 - 4(9)(4)}}{2(9)}$

$X = \frac{-12 \pm \sqrt{0}}{18}$

$X = \frac{-12 \pm 0}{18}$

$X = \frac{-12 + 0}{18}$ $X = \frac{-12 - 0}{18}$

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

Discriminant
 $b^2 - 4ac$
 $(12)^2 - 4(9)(4)$
 $= 0$
 1 real

Feb 12-5:54 PM

Ex4) $t^2 + 2t + 16 = 0$

$X = \frac{-2 \pm \sqrt{(2)^2 - 4(1)(16)}}{2(1)}$

$X = \frac{-2 \pm \sqrt{-60}}{2}$

$X = \frac{-2 \pm 2i\sqrt{15}}{2}$

$X = -1 \pm i\sqrt{15}$

$X = -1 + i\sqrt{15}$ $X = -1 - i\sqrt{15}$

Disc
 $b^2 - 4ac$
 $(2)^2 - 4(1)(16)$
 $= -60$
 2 imag.

$\sqrt{-60} = \pm i\sqrt{60}$
 $\sqrt{60} = \sqrt{4 \cdot 15} = 2\sqrt{15}$
 $\sqrt{-60} = \pm 2i\sqrt{15}$

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#9 Find the roots by factoring

$X^2 + 11X + 24 = 0$ $a=1$
 $b=11$
 $c=24$

$(X+3)(X+8) = 0$

$X+3=0$ $X+8=0$

$X=-3$ $X=-8$

Another Method (Formula)

$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$X = \frac{-11 \pm \sqrt{(11)^2 - 4(1)(24)}}{2(1)}$

$X = \frac{-11 \pm \sqrt{25}}{2} = \frac{-11 \pm 5}{2}$

$X = \frac{-11 + 5}{2}$ $X = \frac{-11 - 5}{2}$

$X = -3$ $X = -8$

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