Friday, February 1

Clicker Questions

Clicker Question 1

Some quadratic polynomials can be factored into two linear polynomials with real numbers as coefficients:

$$3x^2 + 7x - 6 = (x+3)(3x-2)$$

$$x^2 - 5 = (x+\sqrt{5})(x-\sqrt{5})$$

A. always

B. when $b^2 - 4ac \geq 0$

C. when $c \geq 0$

D. when $2ax + b \geq 0$

E. when two of the numbers a, b, c have different signs

In general:

When does the quadratic polynomial $ax^2 + bx + c$ factor into two linear polynomials in this way?

The reason:

$ax^2 + bx + c$ factors this way
$\iff$ it has one or two roots
$\iff$ $\sqrt{b^2 - 4ac}$ is defined (by the quadratic formula)