FACTOR FORM OF A QUADRATIC EXPRESSION

FRI 15 FEB 2019

$$f(x) = a(x-d)(x-e)$$

This is one factor

This is the other factor

The word factor means we are dealing with a PRODUCT

It's called FACTOR FORM because it is the product, that is, the multiplication, of 3 terms a, (x-d) & (x-e).

∴

You can also see the factor form as this

$$f(x) = a(x+r)(x+s)$$

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

EXAMPLES

$g(t) = 3(x-7)(x+2) = a(x-d)(x-e)$

Find a, d, & e: $a=3$ $d=7$ $e=-2$

Find r & s: $r=-7$ $s=2$

FROM STANDARD FORM TO FACTOR FORM

$$f(x) = ax^2 + bx + c = a(x+r)(x+s)$$

Example $f(x) = x^2 - 7x + 12 = a(x+r)(x+s) = (x-4)(x-3)$

Find 2 #'s r & s such that the add to -7 & their product is 12

$A = -4$ $B = -3$

$r + s = -7$ | $a = 1$

$rs = 12$

Examples (cont.)

$$f(x) = 2x^2 + 5x - 3 = a(x+r)(x+s)$$

Ans: $a = 2$ Hence we need to find two #'s A & B such that

$$A + B = 5$$

$$AB = 2(-3) = -6$$

7 −2

6 −1

$A = 6$

$B = -1$

$$f(x) = (2x-1)(x+3)$$

$2x^2 + 6x - x - 3$

$$f(x) = 3x^2 + 12x - 15 = (3x+t)(x+4)$$

Ans $A + B = 12$

$AB = 3 \cdot (-15) = -45$

~~17 -5~~

15 -3

$A = 15$

$B = -3$

Hence

$$f(x) = (3x+B)(x+A)$$

$$= (3x-3)(x+5)$$

$$= 3(x-1)(x+5)$$

$g(x) = 2x^2 + 13x - 7$

Ans:

$A + B = -13$

$AB = 2 \cdot (-7) = -14$

$-14 \quad 1$

$A = -14$

$B = 1$

Hence

$g(x) = (2x + 13)\left(x + \frac{A}{2}\right)$

$= (2x + 1)(x - 7)$

ASSIGNMENT 1 (TERM 3) (DUE: FRI 22nd Feb)

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ASSIGNMENT 2

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