Algebra I | Tues. 4-16-13 | Class Notes

Homework review: Pg 505 #7-15

(9) $x^2 - 5x + 6 = 0$ S.F.? ✓ GCF? ✓

$a = 1$

sum $= b = -5$

prod $= ac = 6$

opps shortcut $= (-2)(-3)$

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

zpp

$x = \{2, 3\}$

Ck $x=2$: $(2)^2 - 5(2) + 6 \stackrel{?}{=} 0$

$4 - 10 + 6 \stackrel{?}{=} 0$ ✓

Ck $x=3$: $(3)^2 - 5(3) + 6 \stackrel{?}{=} 0$

$9 - 15 + 6 \stackrel{?}{=} 0$ ✓

(10) $x^2 - 3x = 10$ S.F. GCF

$1x^2 - 3x - 10 = 0$

SHORT CUT: Sum $= b = -3$

Prod $= ac = -10$

$+2 \quad -5$

$(x+2)(x-5) = 0$ $\quad x = \{-2, 5\}$

CK $x=-2$: $(-2)^2 - 3(-2) \stackrel{?}{=} 10$

$4 + 6 \stackrel{?}{=} 10$ ✓

CK $x=5$: $(5)^2 - 3(5) \stackrel{?}{=} 10$

$25 - 15 \stackrel{?}{=} 10$ ✓

(13) $x^2 - 8x + 16 = 0$ SF ✓ GCF?

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

Perfect Square Trinomial

$x = \{4\}$

Double root

CK $(4)^2 - 8(4) + 16 \stackrel{?}{=} 0$

$16 - 32 + 16 \stackrel{?}{=} 0$ ✓

(EX) $x^2 - 8x - 16 = 0$ SF, GGF

sum = b = −8

prod = ac = −16

$a = 1$

$b = -8$

$c = -16$

$b^2 - 4ac$ = discriminant = d

$(-8)^2 - 4(1)(-16)$

$64 + 64$

$128 = d$

NOT perf. sq.

∴ CANNOT BE FACTORED

⇓

MANY USES

FIRST USE,

"if d = + perfect square, then the quadratic trinomial can be factored"

(21) $x^2 - 8x + 16 = 0$

Perf Sq. trinomial

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

discriminant = perf. sq. AND $d = 0$

Prove it

$a = 1$

$b = -8$

$c = 16$

$b^2 - 4ac$

$(-8)^2 - 4(1)(16)$

$64 - 64 = 0 = d$!

(14) $-3x^2 = 18x + 27$ SF.

$3x^2 + 18x + 27 = 0$ GCF = 3 Look

$3[x^2 + 6x + 9] = 0$

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

$\boxed{x = \{-3\}}$

CK $x = -3$

$-3(-3)^2 \stackrel{?}{=} 18(-3) + 27$

$-27 \stackrel{?}{=} -54 + 27$

$-27 \stackrel{?}{=} -27$ ✓

(15) $x^2 + 36 = 12x$ SF ✓

$x^2 - 12x + 36 = 0$ GFC ✓

sum = b = −12

prod = ac = 36

−6 −6

$(x-6)(x-6) = 0$ $\boxed{x = \{6\}}$

CK $(6)^2 + 36 \stackrel{?}{=} 12(6)$

$72 \stackrel{?}{=} 72$ ✓