ALGEBRA 1B ~ QUARTER 3 QUIZ 2 ~ SOLUTION KEY

Solve: find a value(s) for the variable that make a true expression in original

① $8y^2 - 12y + 4 = y + 10$

$\quad -y - 10 \quad -y - 10$

$8y^2 - 13y - 6 = 0$

sum: -13

prod: -48

$+3 \quad -16$

$(8y^2 - 16y) + (3y - 6) = 0$

$8y(y - 2) + 3(y - 2) = 0$

$(y - 2)(8y + 3) = 0$

$\therefore \boxed{y = \{2, -\frac{3}{8}\}}$

② $r^2 - 18r + 56 = 0$

sum $= -18$

prod $= 56$

$-4 \quad -14$

$(r - 4)(r - 14) = 0$

$\therefore \boxed{r = \{4, 14\}}$

③ $K^2 + 8K = 84$

$K^2 + 8K - 84 = 0$

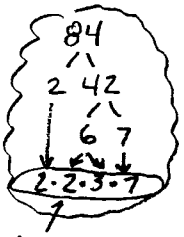
sum $= 8$

prod $= -84$

$-6 \quad 14$

$(K - 6)(K + 14) = 0$

$\therefore \boxed{K = \{6, -14\}}$



LOOK, DO YOU SEE THE 6-14 in the prime factorization?

NOT USED **④** $2x^2 = -21x - 40$

$2x^2 + 21x + 40 = 0$

sum $= 21$

prod $= 80$

$+5 \quad +16$

$(2x^2 + 5x) + (16x + 40) = 0$

$x(2x + 5) + 8(2x + 5) = 0$

$(2x + 5)(x + 8) = 0 \quad \therefore \boxed{x = \{-\frac{5}{2}, -8\}}$

⑤ $x^2 + 15x + 14$

sum $= 15$

prod $= 14$

$+1 \quad +14$

$\boxed{(x + 1)(x + 14)}$ ← FACTORS

⑥ $g^2 - 9g - 22$ or $x^2 - 9x - 22$

sum $= -9$

prod $= -22$

$+2 \quad -11$

FACTORS → $\boxed{(x + 2)(x - 11)}$

⑦ $3t^2 + 10t + 8$

sum $= 10$

prod $= 24$

$+4 \quad +6$

FACTORS → $\therefore \boxed{(x + 4)(x + 6)}$

⑧ $2t^2 + 4t + 8$

$2(t^2 + 2t + 4)$

GCF is 2

sum $= 2$

prod $= 4$

$? \quad ?$

NO MAGIC NUMBERS, CANNOT FACTOR INTO BINOMIALS

ONLY FACTORS ARE 2 AND $t^2 + 2t + 4$

BUT SINCE ALL ANSWERS ARE BINOMIALS AND THE TRINOMIAL IS PRIME, ANSWER IS PRIME.

⑨ $12v^2 - 27$

$3(4v^2 - 9)$

GCF is 3

FITS $a^2 - b^2 = (a - b)(a + b)$ PATTERN

$\therefore \boxed{3(2v - 3)(2v + 3)}$

↑ ↑ ↑ there are 3 FACTORS

⑩ $8x^2 + 2x - 3$

$a = 8$

$b = 2$

$c = -3$

$b^2 - 4ac$

$(2)^2 - 4(8)(-3)$

$4 + 96 = \boxed{100}$

The discriminant of $8x^2 + 2x - 3$ is 100

⑪ $2x^2 = -21x - 40 \quad \therefore \quad 2x^2 + 21x + 40 = 0$

$a = 2$

$b = 21$

$c = 40$

$b^2 - 4ac$

$(21)^2 - 4(2)(40)$

$441 - 320$

$\boxed{121}$

$21 \times 21 = 21 + 42 = 441$