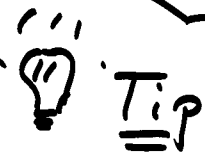


Alg. 1 BE | MONDAY 2-6-12

① $\frac{1}{2} + \frac{1}{3} = ?$

② $\frac{1}{x} + \frac{1}{y} = ?$



STUDY HOW YOU
DID #1

③ $\frac{1}{a} + \frac{1}{4a^2} = ?$

④ $\frac{-c}{a} + \frac{b^2}{4ac} = ?$

⑤ $\sqrt{\frac{4}{9}} = ?$

⑥ $\pm \sqrt{49} = ?$

⑦ SOLVE: $x^2 = 121$

A NOTE ABOUT RADICALS $\Rightarrow \sqrt{\quad}$

$$\sqrt{\frac{4}{9}} = \frac{\sqrt{4}}{\sqrt{9}} = \frac{2}{3}$$

\Uparrow
LOOK, you CAN change

$$\frac{\sqrt{x}}{\sqrt{y}} \text{ to } \sqrt{\frac{x}{y}} \text{ OR BACK } \frac{\sqrt{x}}{\sqrt{y}}$$

Also: $x^2 = 100$

$$\sqrt{x^2} = \sqrt{100}$$

$$x = \pm 10$$

$$\begin{aligned} a &= 1 \\ b &= 0 \\ c &= -100 \end{aligned}$$

* WHEN YOU SOLVE AN EQUATION BY $\sqrt{\quad}$ BOTH SIDES, YOUR ANSWER WILL BE \pm NOT JUST +

CK: $(-10)^2 = 100 \checkmark$ CK $(10)^2 = 100 \checkmark$

RECALL OUR 3 SPECIAL PATTERNS FROM Ch. 8-8 you are supposed to know cold:

① $(a+b)^2 = (a+b)(a+b) = a^2 + 2ab + b^2$

② $(a-b)^2 = (a-b)(a-b) = a^2 - 2ab + b^2$

③ $(a+b)(a-b) = a^2 - b^2$
DIFFERENCE OF SQUARES (DOS)

Just like 16 is called a perfect square because $\sqrt{16} = 4$ or $4 \cdot 4 = 16$

The first two trinomial $a^2 \pm 2ab + b^2$ are called perfect square trinomials because $\sqrt{a^2 \pm 2ab + b^2} = a \pm b$ or $(a \pm b)(a \pm b) = a^2 \pm 2ab + b^2$

The discriminant of a perfect square trinomial is zero. That is, $b^2 - 4ac = 0$. It is factorable, the factors will be identical.

The long way:

$$\text{Solve } x^2 + 6x + 9 = 0$$

$$\text{sum} \Rightarrow 6$$

$$\text{prod} \Rightarrow 9$$

$$+ \overset{\wedge}{3} + \overset{\wedge}{3}$$

$$\begin{aligned} & b^2 - 4ac \\ & (6)^2 - 4(1)(9) \\ & 36 - 36 = 0 \end{aligned}$$

Since $a=1$

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

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

↑ ↑
"TWO ANSWERS" to A SECOND degree EQUATION, BOTH ARE THE SAME.

Short way:

$$\text{Solve } x^2 + 6x + 9 = 0$$

$$\begin{aligned} \textcircled{1} & \text{ perfect sq. ?} \\ & \text{Yes,} \\ & \sqrt{x^2} = x \end{aligned}$$

$$\begin{aligned} \textcircled{2} & \text{ perfect sq. ?} \\ & \text{Yes, } \sqrt{9} = 3 \end{aligned}$$

$$\textcircled{3} \text{ Is } 6x = 2(x)(3) ? \checkmark$$

"2a b"

Use PATERN:

$$\begin{aligned} (x+3)(x+3) &= 0 \\ (a+b)(a+b) & \end{aligned}$$

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

Ex 1b
Pg 509

Solve $9y^2 - 12y + 4 = 0$

CK for
GCF 1st!

$$\begin{array}{ccc} \sqrt{9} & & \sqrt{4} \\ 3y & & 2 \\ & \diagdown & / \\ & 2 \cdot 3y \cdot 2 & \checkmark \end{array}$$

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

$$y = \left\{ \frac{2}{3} \right\}$$

Ex 1a
Pg 509

Solve $16x^2 + 32x + 64 = 0$

$$16(x^2 + 2x + 4) = 0$$

$$\begin{array}{ccc} \sqrt{x^2} & & \sqrt{4} \\ " & & " \\ x \checkmark & & 2 \checkmark \\ & \diagdown & / \\ & 2 \cdot x \cdot 2 & \underline{\text{NO}} \end{array}$$

TRY Sum $\Rightarrow 2$ 1
Prod $\Rightarrow 4$

? ? IS it prime?

$$\begin{array}{l} a = 1 \\ b = 2 \\ c = 4 \end{array}$$

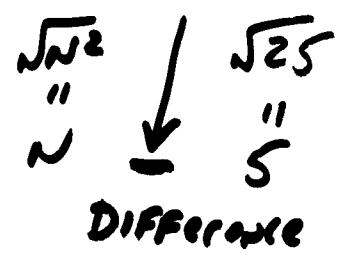
$$b^2 - 4ac$$

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

$$4 - 16 = -12 \quad \text{NO REAL SOLUTION!}$$

Ex
Pg 502

Solve $N^2 - 25 = 0$



$$(N-5)(N+5) = 0$$

$$N = \{5, -5\}$$

OR

$$N^2 - 25 = 0$$

$$N^2 = 25$$

$$\sqrt{N^2} = \pm \sqrt{25}$$

$$N = \pm 5$$

Ch. 9-5 FACTORING $a^2 - b^2$

DOS¹⁵

Ch 9-6 FACTORING $a^2 \pm 2ab + b^2$

PST¹⁵

- Homework: Pg 518 # 53-55
57, 61, 63.