

Alg. 1 BE - Tuesday 2-24-09

① Simplify:

Ⓐ $\sqrt{54}$ Ⓑ $\sqrt{50}$ Ⓒ $\sqrt{\frac{4}{3}}$

Ⓓ $3\sqrt{8} \cdot 2\sqrt{6}$ Ⓔ $3\sqrt{5} - \sqrt{5} + 2\sqrt{2}$

② Solve: $3x^2 + 2x + 7 = 10$

• Steps: ① GCF?

② PST?

③ Magic Numbers?

④ Complete The Square

• Homework review $\Rightarrow$ Pg 589/90 4-6, 9, 10, 15-21
Pg 595 #4-9

$$\textcircled{2} \quad 3x^2 + 2x + 7 = 10$$

$$\frac{3x^2}{3} + \frac{2x}{3} + \text{cloud} = \frac{3}{3} + \text{cloud}$$

$$x^2 + \frac{2}{3}x + \frac{1}{9} = 1 + \frac{1}{9}$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$(x + \frac{1}{3})^2 = \frac{9}{9} + \frac{1}{9} = \frac{10}{9}$$

$$\sqrt{(x + \frac{1}{3})^2} = \pm \sqrt{\frac{10}{9}} = \pm \frac{\sqrt{10}}{3}$$

$$x + \frac{1}{3} = \pm \frac{\sqrt{10}}{3}$$

$$x = -\frac{1}{3} \pm \frac{\sqrt{10}}{3}$$

$$\boxed{x = \left\{ \frac{-1 + \sqrt{10}}{3}, \frac{-1 - \sqrt{10}}{3} \right\}}$$

$$\text{or } x = \left\{ -\frac{1}{3} + \frac{\sqrt{10}}{3}, -\frac{1}{3} - \frac{\sqrt{10}}{3} \right\}$$

*①

conjugates binomial of the
form $(a-b)(a+b)$
or $(a+b)(a-b)$

Ex) the conjugate of $1+\sqrt{3}$ is $1-\sqrt{3}$

TIP: use conjugates to RATIONAL
A denominator

① Ex) $\frac{1}{2+\sqrt{3}} \cdot \frac{2-\sqrt{3}}{2-\sqrt{3}} = \frac{2-\sqrt{3}}{1} = \boxed{2-\sqrt{3}}$

$$(2+\sqrt{3})(2-\sqrt{3}) =$$

$$4 - 2\sqrt{3} + 2\sqrt{3} - 3 = 1$$

$$\begin{array}{c} \updownarrow \\ 2^2 \end{array}$$

$$-(\sqrt{3})^2$$

Difference of
Squares Pattern

(EX)

$$\frac{2}{3+\sqrt{5}} \cdot \frac{3-\sqrt{5}}{3-\sqrt{5}} = \frac{6-2\sqrt{5}}{4}$$

$$\downarrow \quad \downarrow$$

$$3^2 - 5 = 4$$

$$= \boxed{\frac{3-\sqrt{5}}{2}}$$

$$\underline{\underline{CK}} \quad \frac{2}{3+\sqrt{5}} = \frac{2}{3+2.24} = 0.382$$

$$\frac{3-\sqrt{5}}{2} = \frac{3-2.24}{2} = 0.38 \checkmark$$

EX 5
Pg 589

$$\frac{2}{6-\sqrt{3}} \cdot \frac{6+\sqrt{3}}{6+\sqrt{3}}$$

$$= \frac{12+2\sqrt{3}}{36-3} = \boxed{\frac{12+2\sqrt{3}}{33}}$$

Homework:

① Pg. 590 # 27-28
33-37
39-40

② Pg 595 # 10-12
33

③ Solve $3x^2 + 4x - 8 = 0$

* ④ Check your EXACT SOLUTION
to # 3 { * BONUS }