

Alg. I - BE Monday 3-2-09

Solve:

① $2x + 3 = 14$

② $5(x-2) + 6 = 4(8-x)$

③ $7x - 4 < 2x + 6$

④ $x^2 + 12x + 36 = 0$

⑤ $x^2 - 9x + 14 = 0$

⑥ $2x^2 - 5x - 4 = 0$

• Homework review: Pg. 550
#14-20

CTS: $ax^2 + bx + c = 0$

1.
Special cases of $ax^2 + bx + c = 0$
and some shortcuts to look for:

Ⓔ $ax^2 + bx + c = 0$ if $c = 0$

$2x^2 + 5x = 0$ Use GCF

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

Ⓔ $ax^2 + bx + c = 0$ if $b = 0$

$3x^2 + 2 = 0$ ISOLATE x^2
term, i.e., get
it by itself,
take $\sqrt{\quad}$

$3x^2 = -2$

$\sqrt{3x^2} = \pm \sqrt{-2}$

No real solution

or
No real roots

$$\textcircled{\text{EX}} \quad 8x^2 - 2 = 0$$

$$8x^2 = 2$$

$$\sqrt{x^2} = \pm \sqrt{\frac{1}{4}}$$

$$x = \pm \frac{1}{2} \quad \text{or} \quad \boxed{x = \left\{-\frac{1}{2}, \frac{1}{2}\right\}}$$

$$\begin{array}{l} \text{CK} \\ x = -\frac{1}{2} \end{array} \quad \begin{array}{l} 8\left(-\frac{1}{2}\right)^2 - 2 \stackrel{?}{=} 0 \\ 8\left(\frac{1}{4}\right) - 2 \stackrel{?}{=} 0 \checkmark \end{array} \quad \left\{ \begin{array}{l} \text{CK} \\ x = \frac{1}{2} \end{array} \right. \quad \begin{array}{l} 8\left(\frac{1}{2}\right)^2 - 2 \stackrel{?}{=} 0 \checkmark \end{array}$$

$$\textcircled{\text{EX}} \quad 9x^2 - 4 = 0 \quad \text{BE Alert!}$$

DOS PATTERN

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

$$\boxed{x = \left\{\frac{2}{3}, -\frac{2}{3}\right\}}$$

$$a^2 - b^2 = 0$$

$$(a - b)(a + b) = 0$$

DOS PATTERN $\Rightarrow$ CONJUGATES

Looking at the discriminant
 $= d = b^2 - 4ac$

See Table AT TOP OF Pg. 549

Practice: Pg 550 # 21-23

Homework: Pg 550 # 24-27

⊕ Practice Completing the Square of $ax^2 + bx + c = 0$.
(for double quiz Weds.).

⊕ Look for any good Quadratic Formula or Completing the Square Web Sites — Email or bring them to class, if good, I will post on Assignment Page.

Reference Page



Use the information below to answer questions on the Alabama High School Graduation Exam.

Some Abbreviations Used in Formulas

b_1, b_2 = bases of a trapezoid

b = base of a polygon

h = height or altitude

l = length

w = width

 symbol for a right angle

$m\angle$ = the measure of an angle

A = area

C = circumference

r = radius

d = diameter

$\pi = 3.14$

P = perimeter

D = distance

M = midpoint

m = slope

$S.A.$ = surface area

V = volume

B = area of the base

S = sum of interior angles of a convex polygon

n = number of sides of a convex polygon

Formulas

Triangle: $A = \frac{1}{2}bh$

Parallelogram: $A = bh$

Rectangle: $A = lw$

Trapezoid: $A = \frac{1}{2}h(b_1 + b_2)$

Circle: $C = \pi d$

$C = 2\pi r$

$A = \pi r^2$

Distance = rate $\cdot$ time

Interest = principal $\cdot$ rate $\cdot$ time

Distance Formula:

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint Formula: $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

Slope Formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Sum of Measures of Interior Angles of a Convex Polygon: $S = 180(n - 2)$

Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Pythagorean Theorem: $c^2 = a^2 + b^2$

SURFACE AREA VOLUME

Rectangular Prism	$S.A. = Ph + 2B$	$V = Bh$
	or $S.A. = 2(wh + lh + lw)$	or $V = lwh$
Cylinder	$S.A. = 2\pi rh + 2\pi r^2$	$V = \pi r^2 h$

Forms of Equations

Standard form of an equation of a line: $Ax + By = C$

Slope-intercept form of an equation of a line: $y = mx + b$

Point-slope form of an equation of a line: $y - y_1 = m(x - x_1)$