Alg.1-BE Monday 3-1-10

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. $2x^2 - 5x - 4 = 0$

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

(Ex) $ax^2+bx+c=0$ if $c=0$

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

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

(Ex) $ax^2+bx+c=0$ if $b=0$

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

$3x^2=-2$

$\sqrt{3x^2}=\pm\sqrt{-2}$ $\boxed{\text{No real solution}}$

or

No real roots

(Ex) $8x^2 - 2 = 0$

$8x^2 = 2$

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

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

CK $x = -\frac{1}{2}$: $8\left(-\frac{1}{2}\right)^2 - 2 \stackrel{?}{=} 0$; $8\left(\frac{1}{4}\right) - 2 \stackrel{?}{=} 0$ ✓

CK $x = \frac{1}{2}$: $8\left(\frac{1}{2}\right)^2 - 2 \stackrel{?}{=} 0$ ✓

(Ex) $9x^2 - 4 = 0$ 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 $ax^2 + bx + c = 0$.

4.

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 · time

Interest = principal · rate · 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. = $Ph + 2B$ or S.A. = $2(wh + lh + lw)$	$V = Bh$ 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: $y - y_1 = m(x - x_1)$