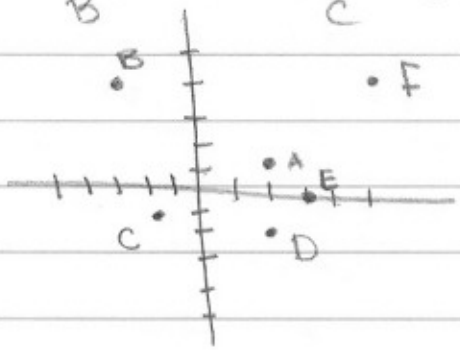
Chapter 1

Graphing

(ex) Plot the points

$(2,1)_A$, $(-3,4)_B$, $(-2,-1)_C$, $(2,-2)_D$, $(3,0)_E$



What are coordinates of F?

(5,4)

Solving Equations

(ex) $\frac{x-4}{2} = 4x$

$x-4 = 8x$

$-4 = 7x$

$-4/7 = x$

(ex.) $3(x-3)+8x = 2x-5$

$3x-9+8x = 2x-5$

$11x-9 = 2x-5$

$9x = 4$

$x = 4/9$

Imaginary #s

ex. $\sqrt{-100} = 10i$

$(2+3i)-(1-2i) = 1+7i$

$2i(3+6i) = 6i+12i^2 = 6i-12 = -12+6i$

$(2+7i)(3-2i) = 6-4i+21i-14i^2$
$= 6+17i+14$
$= 20+17i$

Solving Quadratic Equations

ex. Solve $x^2+6x+8=0$

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

$x=-2$ or $x=-4$

OR

$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a}$ $\quad a=1 \quad b=6 \quad c=8$

$x = \frac{-6\pm\sqrt{6^2-4(1)(8)}}{2(1)} = \frac{-6\pm\sqrt{4}}{2} = \frac{-6\pm 2}{2}$

$= \frac{-6+2}{2}$ or $\frac{-6-2}{2}$

$= -2$ or -4

OR

$x^2+6x=-8$

$x^2+6x+9=1$

$(x+3)^2=1$

$x+3=1$ or $x+3=-1 \longrightarrow x=-2$ or $x=-4$

Solving Equations & Inequalities

Solve.

(ex) $|5x-2|+4=6$

$|5x-2|=2$

$5x-2=2$ or $5x-2=-2$

$x=4/5$ or $x=0$

Check: $|5(4/5)-2|+4=6$ $\quad |5(0)-2|+4=6$ ✓

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

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

$2x-3=9-6x+x^2$

$x^2-8x+12=0$

$(x-6)(x-2)=0$

$x=6$ or 2

Check: $\sqrt{12-3}+6=9\neq 3$ $\quad \sqrt{4-3}+2=3$ ✓

$\boxed{x=2}$

(ex) $-3x+2\leq 5$

$-3x\leq 3$

$x\geq -1$

(ex) $|2x+1|>9$

$2x+1>9$ or $2x+1<-9$

$x>4$ or $x<-5$

$|2x+1|<9$

$-9<2x+1<9$

$-5<x<4$