1.10.2

$$\sum_{n=0}^{\infty} \frac{(2x)^n}{3^n}$$

$\{x : 2|x| < 3\}$

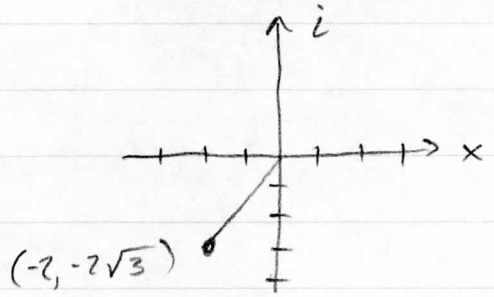
$\{x : |x| < 3/2\}$

$(-1.5 .. 1.5)$

2.4.12

$$4\left(\cos\frac{2\pi}{3} - i\sin\frac{2\pi}{3}\right) = -4\left(\frac{1}{2} + i\frac{\sqrt{3}}{2}\right)$$
$$= -2\left(1 + i\sqrt{3}\right)$$
$$= -2 - 2i\sqrt{3}$$

polar: $r = 4$, $\theta = -120°$



$$-2 - 2i\sqrt{3} = 4\left(\cos\frac{2\pi}{3} - i\sin\frac{2\pi}{3}\right) = 4e^{i2\pi/3}$$

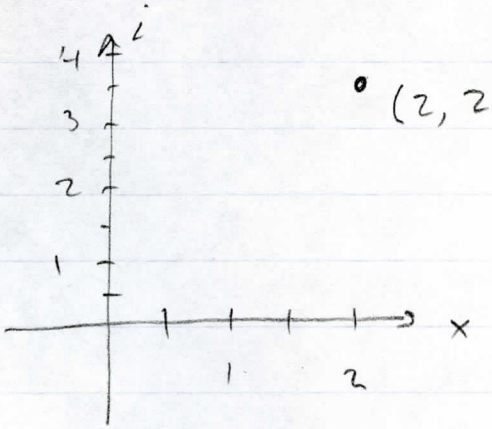
$x = r\cdot\cos\theta$ $\qquad$ $y = r\cdot\sin\theta$

$x = -2$ $\qquad$ $y = -2i\sqrt{3}$

$x = 4\cos\frac{2\pi}{3}$ $\qquad$ $y = 4\sin\frac{2\pi}{3}$

2.5.5

$$(i+\sqrt{3})^2 = (i+\sqrt{3})(i+\sqrt{3})$$
$$= i^2 + 2i\sqrt{3} + 3$$
$$= 2 + 2i\sqrt{3}$$



2.5.41

$$(2x-3y-5) + i(x+2y+1) = 0$$
$$2x - 3y - 5 + (0+i)(x+2y+1) = 0$$
$$(2+i)x + 5 + i + (-3+2i)y = 0$$
$$(2+i)x = 5 - i + (3-2i)y$$

Solve for x:

$$x = \frac{5 - i + (3-2i)y}{(2+i)} = \frac{(2-i)((3-2i)y + 5 - i)}{5}$$

Solve for y:

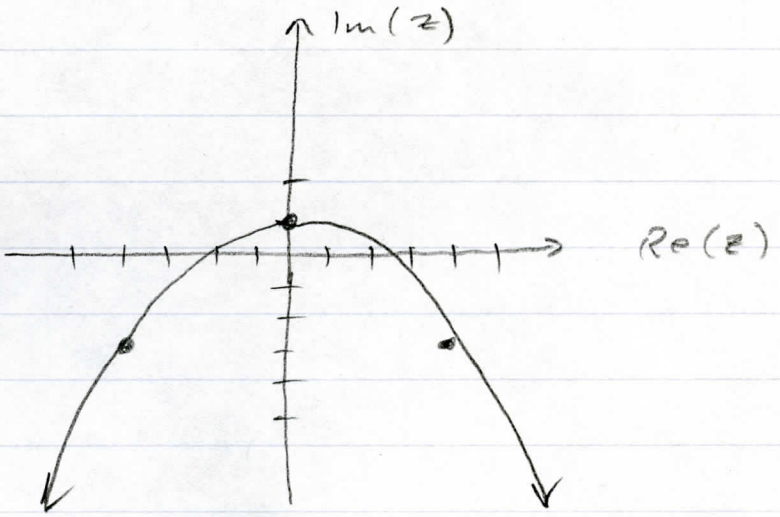
$$y = \frac{(2+i)x - 5 + i}{(3-2i)} = \frac{(3-2i)((2+i)x - 5 + i)}{13}$$

$$y = \left(\frac{4}{13} + \frac{7i}{13}\right)x + \left(-\frac{17}{13} - \frac{7i}{13}\right) = \frac{7i(x-1) + 4x - 17}{13}$$

2,5,59 $|z + 3i| = 4$ has complex solutions

$z = -4 - 3i$ and

$z = 4 - 3i$



$-\sqrt{16 - z^2} - 3 \rightarrow z = -4 - 3i$

$\sqrt{16 - z^2} - 3 \rightarrow z = 4 - 3i$