

## Distance &amp; Midpoint Between 2 Complex #s

p. 75

distance between 2 complex #s:

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \quad \text{or} \quad \sqrt{(a_2 - a_1)^2 + (b_2 - b_1)^2}$$

midpoint between 2 complex #s:

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right) \quad \text{or} \quad \left(\frac{a_1 + a_2}{2}, \frac{b_1 + b_2}{2}\right)$$

Write in  
a+bi  
form!

Find the distance &amp; midpoint between the following complex #s:

1.  $\begin{matrix} (-2, 4) \\ a & b \end{matrix}$  and  $\begin{matrix} (4, -5) \\ a & b \end{matrix}$

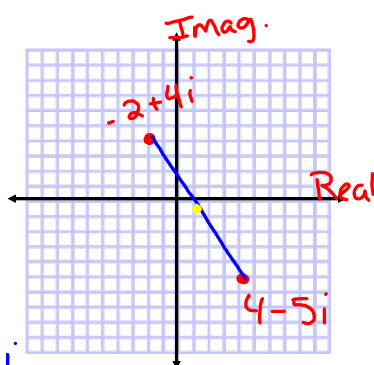
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(4 - (-2))^2 + (-5 - 4)^2}$$

$$d = \sqrt{117} \quad \text{or} \quad 10.8$$

midpt:  $\frac{-2+4}{2}$        $\frac{4i+(-5i)}{2}$

$$1 - \frac{1}{2}i$$



2.  $(1 - i)$  and  $(-3 + 4i)$

$(1, -1)$        $(-3, 4)$

$$d = \sqrt{(-3 - 1)^2 + (4 - (-1))^2}$$

$$d = \sqrt{(-4)^2 + (5)^2}$$

$$d = \sqrt{41} \quad \text{or} \quad 6.4$$

midpt:  $\frac{1+(-3)}{2}$        $\frac{-i+4i}{2}$

$$-1 + \frac{3}{2}i$$

$$\text{or } -1 + 1.5i$$

