**✴ During Tutorial**

#3 - should be easy-peasy

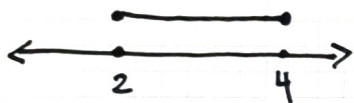#6 - ask tutor

#8 - easy, work with peers
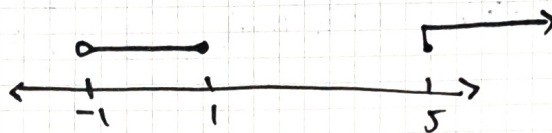
#7 - go over detailed solutions.

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**3**

a) $\{x \in R \mid 2 \leq x \leq 4\}$
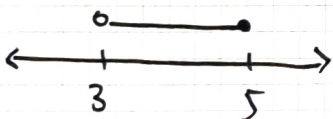
b) $\{x \in R \mid -1 < x \leq 1 \text{ or } x \geq 5\}$

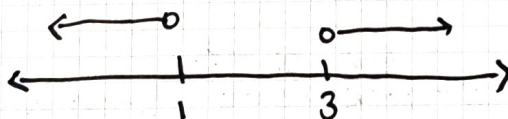c) $[2,5] \cap (3,6]$

$= (3,5]$

d) $\{x \in R \mid |x-1| > 2\}$

$= x - 1 > 2 \quad \text{if} \quad x \geq 1$

$\quad -x + 1 > 2 \quad \text{if} \quad x < 1$

$= x - 3 > 3 \quad \text{if} \quad x \geq 1$

$\quad -x > 1$

$\quad x < 1 \quad \text{if} \quad x < 1$

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**6**   a) $\{z \in C \mid |z| \leq 3\}$   ⊗ $z = a + bi$

$\sqrt{a^2 + b^2} \leq 3$

$a^2 + b^2 \leq 9$
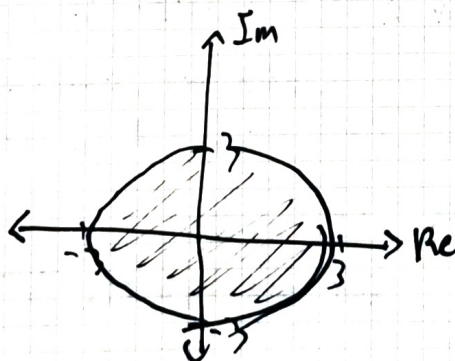
$\cancel{9-3+17=9+14=23}$

b) $\{z \in C \mid Im(z) \geq -1\}$

$b \geq -1$
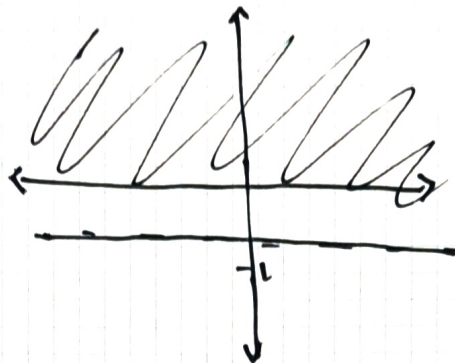
c) $\{z \in C \mid |z-i| \leq |z-1|\}$

$|\cancel{z} + (b-1)i| \leq |(a-1) + bi|$
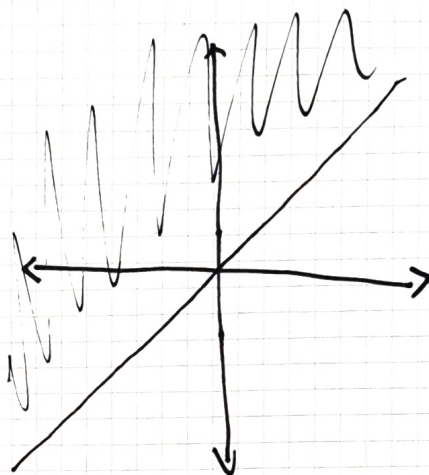
$\sqrt{a^2 + (b-1)^2} \leq \sqrt{(a-1)^2 + b^2}$

$a^2 + (b-1)^2 \leq (a-1)^2 + b^2$

$\cancel{a^2} + \cancel{b^2} - 2b + 1 \leq \cancel{a^2} - 2a + 1 \cancel{+b^2}$
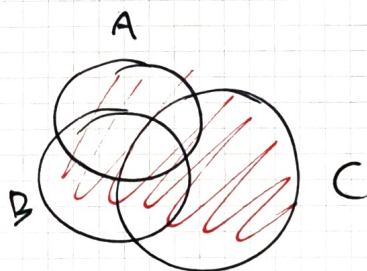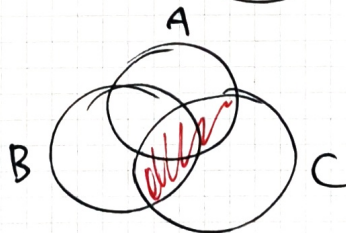
$2a + 1 \leq 2b + 1$

$2a \leq 2b$

$a \leq b$

8.

$A \cup B \cup C =$

$(A \cup B) \cap C$

$\frac{1}{3} \div \frac{2}{3} \times \frac{3}{2}$

$= \frac{4}{3}$