*LT 1B - I can <u>explain</u> how the **elements** in the **real numbers system** and **imaginaries** <u>connect</u> to form the **standard form of a complex number** and where the elements fit or do not fit (**disjoint** sets) within the complex numbers system.*

State whether each statement is true or false. BE CAREFUL!

15. $\{e\} \in \{a,e,i,o,u\}$
16. $e \in \{a,e,i,o,u\}$
17. $h \in \{a,e,i,o,u\}$
18. $4 \notin \{x \mid x \in N \text{ and } x \text{ is even}\}$

True or False

28. $3 \subseteq \{1,2,3,4,5\}$
29. $\{3\} \subseteq \{1,2,3,4,5\}$
30. $3 \in \{1,2,3,4,5\}$
31. $\{\ \} \in \{1,2,3,4,5\}$
32. $\{\ \} \subseteq \{1,2,3,4,5\}$
33. $\{\ \} = \varnothing$
34. $\varnothing \subseteq \varnothing$
35. $\{1,2,3,4,5\} \subset \{1,2,3,4,5\}$
36. $\{1,2,3,4,5\} \subseteq \{1,2,3,4,5\}$
37. $\varnothing \subseteq \{\varnothing,1,2,3,4,5\}$
38. $\varnothing \in \{\varnothing,1,2,3,4,5\}$
39. $\{\varnothing\} \subseteq \{\varnothing,1,2,3,4,5\}$

Given $A = \{x \mid x \text{ is a sport that uses a ball}\}$ and $B = \{football, soccer, tennis\}$ are the following statements true or false?

40. $A \subset B$
41. $A \subseteq B$
42. $B \subseteq A$
43. $B \subset A$
44. $A = B$

45. List all of the subsets of $A = \{a,b,c\}$

ANSWERS!

State whether each statement is true or false. BE CAREFUL!

15. $\{e\} \in \{a,e,i,o,u\}$ False, when I use the braces like in {e}, I'm talking about a subSET and have to use $\subseteq$

16. $e \in \{a,e,i,o,u\}$ True

17. $h \in \{a,e,i,o,u\}$ False

18. $4 \notin \{x \mid x \in N \text{ and } x \text{ is even}\}$ False, 4 IS an element of that set!

True or False

28. $3 \subseteq \{1,2,3,4,5\}$ False, wrong symbol!

29. $\{3\} \subseteq \{1,2,3,4,5\}$ True

30. $3 \in \{1,2,3,4,5\}$ True

31. $\{\ \} \in \{1,2,3,4,5\}$ False, wrong symbol! Remember '{ }' is the empty set.

32. $\{\ \} \subseteq \{1,2,3,4,5\}$ True

33. $\{\ \} = \varnothing$ True, another symbol for the empty set!

34. $\varnothing \subseteq \varnothing$ True

35. $\{1,2,3,4,5\} \subset \{1,2,3,4,5\}$ False

36. $\{1,2,3,4,5\} \subseteq \{1,2,3,4,5\}$ True

37. $\varnothing \subseteq \{\varnothing,1,2,3,4,5\}$ True

38. $\varnothing \in \{\varnothing,1,2,3,4,5\}$ True

39. $\{\varnothing\} \subseteq \{\varnothing,1,2,3,4,5\}$ True

Given $A = \{x \mid x \text{ is a sport that uses a ball}\}$ and $B = \{football, soccer, tennis\}$ are the following statements true or false?

40. $A \subset B$ False

41. $A \subseteq B$ False

42. $B \subseteq A$ True

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44. $A = B$ False

45. List all of the subsets of $A = \{a,b,c\}$

$\varnothing, \{a\}, \{b\}, \{c\}, \{a,b\}, \{a,c\}, \{b,c\}, \{a,b,c\}$