

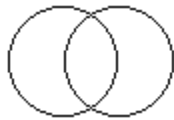
**Worksheet Exercise 3.5.B.**  
Venn Diagrams for Equivalences

Name \_\_\_\_\_  
Class \_\_\_\_\_ Date \_\_\_\_\_

**Part B:** Use Venn diagrams to determine whether the following sentence pairs are equivalent. Symbolize the sentences. Draw a separate diagram for each sentence. Label the circles with the obvious letters. Remember that each circle represents an affirmative term only. Some of these diagrams will make use of the "outer region", so be sure to draw the rectangular outer border in those cases. Finally, say whether the diagrams show the sentences to be equivalent (YES/NO).

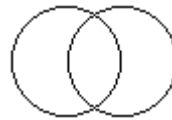
1 (a) No kangaroos are monkeys

symb: \_\_\_\_\_



(b) no monkeys are kangaroos

symb: \_\_\_\_\_

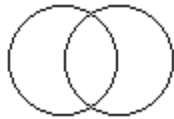


sentences  
equivalent?

\_\_\_\_\_

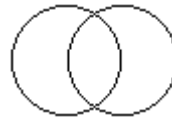
2 (a) Some giraffes are not dragons

\_\_\_\_\_



(b) some dragons are not giraffes

\_\_\_\_\_

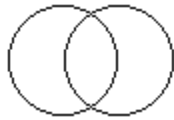


sentences  
equivalent?

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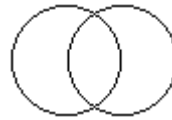
3 (a) All fish are swimmers

\_\_\_\_\_



(b) all swimmers are fish

\_\_\_\_\_

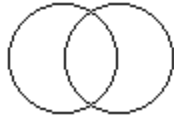


sentences  
equivalent?

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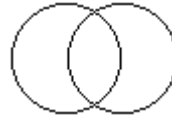
4 (a) All wizards are non-roosters

\_\_\_\_\_



(b) all roosters are non-wizards

\_\_\_\_\_

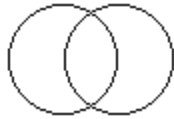


sentences  
equivalent?

\_\_\_\_\_

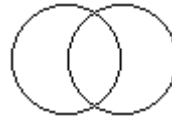
5 (a) some non-bananas are peaches

\_\_\_\_\_



(b) some peaches are non-bananas

\_\_\_\_\_

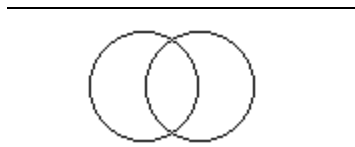


sentences  
equivalent?

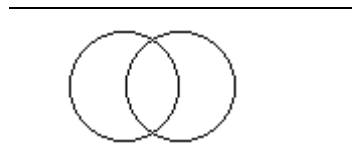
\_\_\_\_\_

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6 (a) All hats are gigantic



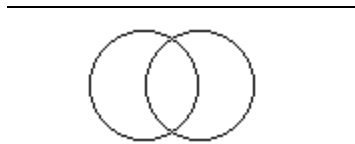
(b) no hats are non-gigantic



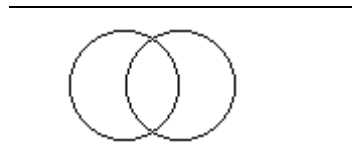
sentences  
equivalent?

\_\_\_\_\_

7 (a) Some ants are monsters



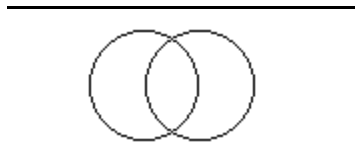
(b) some non-monsters are non-ants



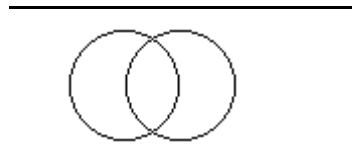
sentences  
equivalent?

\_\_\_\_\_

8 (a) All non-spirits are bulky



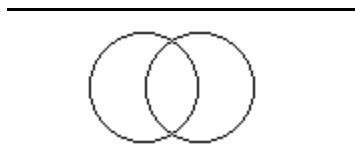
(b) no non-spirits are non-bulky



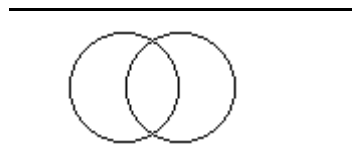
sentences  
equivalent?

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9 (a) All planets are spheres



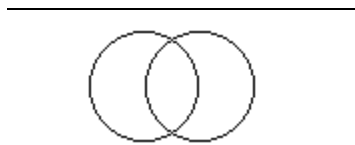
(b) all non-planets are non-spheres



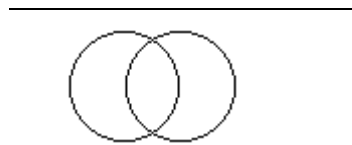
sentences  
equivalent?

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10(a) Some non-ants are non-bugs



(b) some bugs are not non-ants



sentences  
equivalent?

\_\_\_\_\_