

Match the property with the appropriate definition.

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|----------------------------------|---|
| _____ 1. Addition Property | a. If $a = b$, the $ac = bc$. |
| _____ 2. Symmetric Property | b. If $a = b$, the $a - c = b - c$ |
| _____ 3. Substitution Property | c. For all real numbers, $a = a$ |
| _____ 4. Multiplication Property | d. If $a = b$, you may replace a with b in any equation containing a and the resulting equation will remain true |
| _____ 5. Division Property | e. If $a = b$, and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$ |
| _____ 6. Reflexive Property | f. If $a = b$, the $a + c = b + c$. |
| _____ 7. Subtraction Property | g. For all real numbers a and b , if $a = b$, then $b = a$ |
| _____ 8. Transitive Property | h. For all real numbers a and b , if $a = b$, and $b = c$, then $a = c$ |

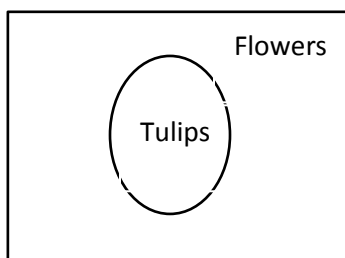
9. Complete the reasons for the following solution.

Statement	Reasons
$3x + 12 = 5x$	Given.
$12 = 2x$	
$6 = x$	

Use the following statement to answer questions #10-13.

All people who live in Ohio live in the United States.

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| 10. Rewrite the statement as a conditional. | 11. Identify the hypothesis and conclusion. |
| 12. Draw an Euler Diagram. | 13. Write the converse of the conditional. |
| 14. Write the conditional from the Euler Diagram. | |



15. If it is snowing in Eugene, then it is snowing in Oregon.

a. Identify the hypothesis and conclusion.

b. Write the converse of the conditional.

c. If the converse is false, give a counterexample.

16. If a figure is a square, then the figure is a rectangle. Figure $ABCD$ is a square.

a. What is the conclusion?

b. Draw an Euler diagram that illustrates your conclusion.

17. **A tree is a plant with leaves.** Explain why this statement is not a definition (use the parts of a definition to verify this).

18. An angle is formed by two rays.

a. Write the conditional statement.

b. Write the converse of the conditional.

c. Write a bi-conditional statement.

d. Decide whether the sentence is a definition, and explain your reasoning.