

Geometry Ch. 2 Review

Short Answer

1. Identify the hypothesis and conclusion of this conditional statement:
If two lines intersect at right angles, then the two lines are perpendicular.

2. What is the conclusion of the following conditional?
A number is divisible by 3 if the sum of the digits of the number is divisible by 3.

3. What is the converse of the following conditional?
If a point is in the first quadrant, then its coordinates are positive.

4. For the following true conditional statement, write the converse. If the converse is also true, combine the statements as a biconditional.
If $x = 3$, then $x^2 = 9$.

5. Use the Law of Detachment to draw a conclusion from the two given statements.
If two angles are congruent, then they have equal measures.
 $\angle P$ and $\angle Q$ are congruent.

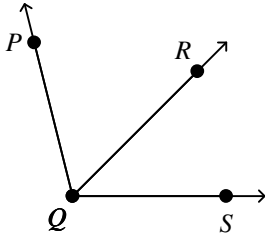
6. Use the Law of Detachment to draw a conclusion from the two given statements. If not possible, write *not possible*.
I can go to the concert if I can afford to buy a ticket.
I can go to the concert.

7. If possible, use the Law of Detachment to draw a conclusion from the two given statements. If not possible, write *not possible*.
Statement 1: If $x = 3$, then $3x - 4 = 5$.
Statement 2: $x = 3$

8. Use the Law of Syllogism to draw a conclusion from the two given statements.
 If a number is a multiple of 64, then it is a multiple of 8.
 If a number is a multiple of 8, then it is a multiple of 2.
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Fill in each missing reason.

9. **Given:** $m\angle PQR = x - 5$, $m\angle SQR = x - 11$, and $m\angle PQS = 100$.
 Find x .



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$$\begin{aligned}
 m\angle PQR + m\angle SQR &= m\angle PQS \\
 x - 5 + x - 11 &= 100 \\
 2x - 16 &= 100 \\
 2x &= 116 \\
 x &= 58
 \end{aligned}$$

- a. _____
 b. Substitution Property
 c. Simplify
 d. _____
 e. Division Property of Equality
-
-

10. **Given:** $11x - 6y = -1$; $x = 8$

Prove: $\frac{89}{6} = y$

$11x - 6y = -1$; $x = 8$ a. _____

$88 - 6y = -1$ b. _____

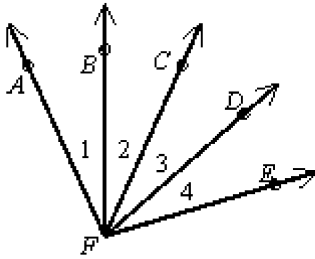
$-6y = -89$ c. _____

$y = \frac{89}{6}$ d. _____

$\frac{89}{6} = y$ e. _____

11. **Given:** $m\angle 1 = m\angle 3$

Prove: $m\angle AFC = m\angle DFB$



- | | |
|---|---|
| $m\angle 1 = m\angle 3$ | a. Given |
| $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$ | b. Addition Property of Equality |
| $m\angle 1 + m\angle 2 = \angle AFC$ | c. ? |
| $m\angle 3 + m\angle 2 = \angle DFB$ | |
| $\angle AFC = \angle DFB$ | d. Substitution Property |

12. Name the Property of Equality that justifies the statement:
If $p = q$, then $p - r = q - r$.

13. Name the Property of Congruence that justifies the statement:
If $XY \cong WX$, then $WX \cong XY$.

14. Name the Property of Congruence that justifies the statement:
If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

Use the given property to complete the statement.

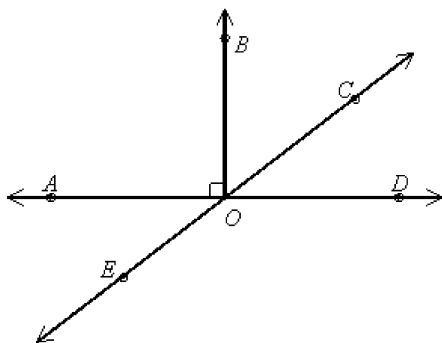
15. Transitive Property of Congruence
If $\overline{CD} \cong \overline{EF}$ and $\overline{EF} \cong \overline{GH}$, then _____.

16. Multiplication Property of Equality
If $4x \div 2 = 4$, then _____.

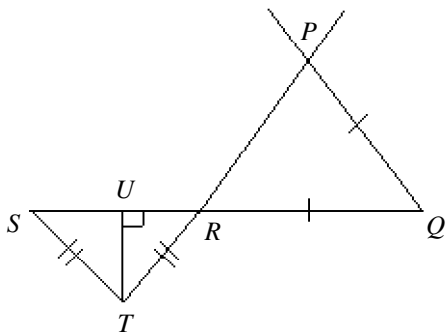
17. Substitution Property of Equality
 If $y = 3$ and $8x + y = 12$, then _____.

18. \overline{BD} bisects $\angle ABC$. $m\angle ABC = 7x$. $m\angle ABD = 3x + 25$. Find $m\angle DBC$.

19. Name an angle supplementary to $\angle EOD$.



20. What can you conclude from the information in the diagram?



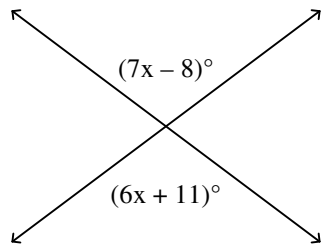
21. The complement of an angle is 25° . What is the measure of the angle?

22. $\angle DFG$ and $\angle JKL$ are complementary angles. $m\angle DFG = x + 5$, and $m\angle JKL = x - 9$. Find the measure of each angle.

23. $\angle 1$ and $\angle 2$ are supplementary angles. $m\angle 1 = x - 39$, and $m\angle 2 = x + 61$. Find the measure of each angle.

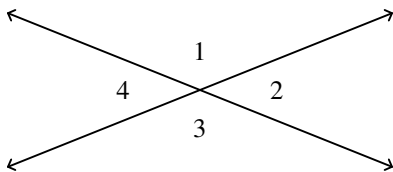
24. If $\angle A$ and $\angle B$ are supplementary angles and $m\angle A = 4m\angle B$, find $m\angle A$ and $m\angle B$.

25. Find the value of x .



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26. $m\angle 3 = 37$. Find $m\angle 1$.

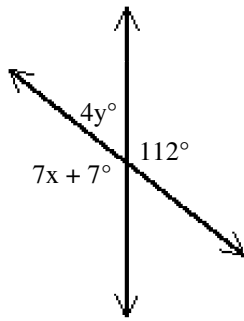


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27. Find the values of x and y .



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