

Geometry Unit 2 Study Guide

Simplify.

- $-12 - -17$
- $42 \div -3$
- $(14)(24)$

Evaluate.

- H is between T and E . $TH = 5x - 2$, $TE = 7x + 4$, and $HE = x + 12$. $TE = ?$
- \overrightarrow{RO} bisects $\angle FRG$. $m\angle FRO = (3x + 22)^\circ$, and $m\angle FRG = (8x + 14)^\circ$. $m\angle FRO = ?$
- $\overline{AB} \cong \overline{CD}$ $CD = ?$

$$\begin{array}{ccccccc} \underline{2x} & & \underline{x+1} & & \underline{x+2} & & \\ \text{A} & \text{B} & \text{C} & \text{D} & \text{E} & \text{F} & \end{array}$$

Determine if the conclusion is valid.

- (Use the Law of Syllogism)
If I breathe, then I am alive. If I am alive, then I am not dead.
Conclusion: If I breathe, then I am not dead.
- (Use the Law of Detachment)
If you go to the store, then you will buy milk.
Sam bought milk.
Conjecture: Sam went to the store.

Fill in the blanks in the proofs below.

Given: $\angle A$ and $\angle B$ are a linear pair.
 $m\angle A = (4x + 12)^\circ$ and $m\angle B = (6x + 48)^\circ$
 Prove: $m\angle B = 120^\circ$

$m\angle A = (4x + 12)^\circ$ and $m\angle B = (6x + 48)^\circ$	16. _____
$\angle A$ and $\angle B$ are a linear pair	Given
$m\angle A + m\angle B = 180^\circ$	17. _____
$4x + 12 + 6x + 48 = 180^\circ$	18. _____
$10x + 60 = 180^\circ$	Simplify
$10x = 120^\circ$	19. _____
$x = 12^\circ$	Division Prop. of Equality
$m\angle B = 6(12) + 48$	20. _____
$m\angle B = 120^\circ$	Simplify

CONDITIONAL: If the moon is up, then it is night.**For #9-15, use the options provided.**

- A. It is night**
B. The moon
C. The moon is up
D. Night
E. If the moon is up
F. Then it is night.

- Identify the hypothesis.
- Identify the conclusion.

- G. If it is night, then the moon is not up.**
H. If the moon is not up, then it is not night.
I. If it is night, then the moon is up.
J. If the moon is not up, then it is night.
K. If it is not night, then it is not night.
L. If a man howls at the moon, then he is a werewolf.
M. If it is not night, then the moon is not up.
N. It is not night if and only if the moon is up.
O. It is night if and only if the moon is bright.
P. The moon is up if and only if it is night.

- Identify the converse of the conditional.
- Identify the inverse.
- Identify the contrapositive.
- Identify the biconditional.
- Identify the statement that is not related to the conditional statement.

Given: \overrightarrow{LM} goes through $\angle KLN$. $m\angle MLN = (2x + 4)^\circ$,
 $m\angle KLN = (5x - 2)^\circ$, and $m\angle KLM = (2x + 10)^\circ$.
 Prove: $x = 16$

$m\angle KLM + m\angle MLN = m\angle KLN$	21. _____
$m\angle MLN = (2x + 4)^\circ$ $m\angle KLN = (5x - 2)^\circ$ $m\angle KLM = (2x + 10)^\circ$	Given
$2x + 10 + 2x + 4 = 5x - 2$	22. _____
$4x + 14 = 5x - 2$	23. _____
$14 = x - 2$	24. _____
$16 = x$	Addition Prop. Equality
$x = 16$	25. _____