Geometry
Chapter 2 Practice Test

Name KEY
Date _____

Determine whether each conjecture is true or false. Provide a counterexample for any *false* conjecture.

1) Given: $m\angle A = m\angle B$

1) TRUE (FALSE)

Conjecture: $\angle A$ and $\angle B$ are vertical angles.

Counterexample (if FALSE): $\angle A$ & $\angle B$ can be a linear pair, both 90°

2) Given: $AM = MB$

2) TRUE (FALSE)

Conjecture: M is the midpoint of $\overline{AB}$

Counterexample (if FALSE): _____

Use the following conditional statement for questions 3 – 5.

Right angles are congruent.

3) Write the statement in If-then form: If 2 angles are right, then they are congruent.

4) Write the hypothesis and conclusion.

Hypothesis: 2 angles are right (p) $(p \to q)$

Conclusion: they are congruent (q)

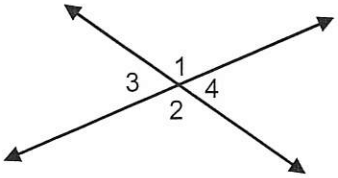
5) Write the converse of question 3: If 2 angles are congruent, then they are right. $(q \to p)$

6) Write the inverse of question 3: If 2 angles are not right, then they are not congruent. $(\sim p \to \sim q)$

7) Write the contrapositive of question 3: If 2 angles are not congruent, then they are not right. $(\sim q \to \sim p)$

8) Is the converse of question 3 TRUE? If not, please provide a counterexample: No. 2 angles can both be 60, thus congruent, but not right.

Use the following picture for questions 9 -12.



$6x-5=5x+23$
$-5x\ +5\quad -5x\ +5$
$x=28$

9) If $m\angle 1 = 6x-5$ and $m\angle 2 = 5x+23$, find the value of x. 9) $x=28$

10) Based on #9, find the $m\angle 1$ and $m\angle 2$. 10) $m\angle 1 =$ 163

$m\angle 2 =$ 163

11) If $m\angle 1 = 4y-7$ and $m\angle 3 = 2y+7$, find the value of y. 11) $y=30$

$4y-7+2y+7=180 \quad y=30$
$6y=180$

12) Based on #11, find the $m\angle 3$ and $m\angle 4$. 12) $m\angle 3 =$ 67

$\angle 3 = 2y+7 = 2(30)+7 = 67$

$m\angle 4 =$ 67

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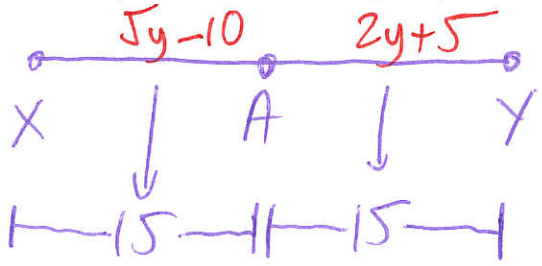
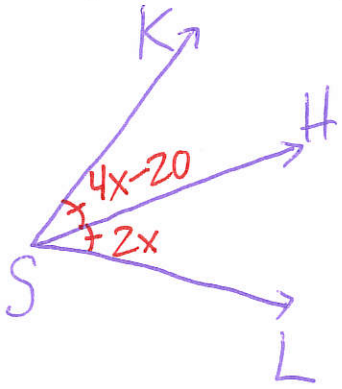
13) If A is the midpoint of XY, $XA = 5y-10$ and $AY = 2y+5$, find XY. (HINT: Draw a diagram) 13) 30



$5y-10=2y+5$
$-2y+10\quad -2y\ +10$
$3y=15$
$y=5$

14) Given that $\overrightarrow{SH}$ bisects $\angle KSL$, $m\angle KSH = 4x-20$, and $m\angle LSH = 2x$. Find the measure of $\angle KSH$. (HINT: Draw a diagram) 14) 20



$4x-20=2x$
$-4x\quad -4x$
$-20=-2x$
$x=10$

$\angle KSH = 4x-20$
$= 4(10)-20$
$= 20$

Write whether each statement is TRUE or FALSE.

15) Right angles are congruent. 15) T F

16) If two angles are adjacent angles, then they are complementary. 16) T F

17) Two angles that are supplementary are congruent. 17) T F

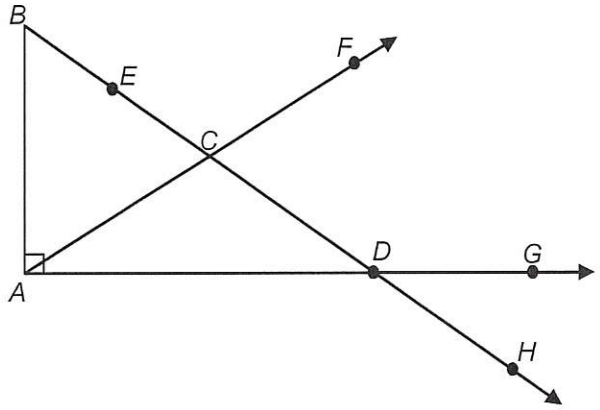
Fill in the blank with the correct word(s).

18) A ____?____ is an educated guess based on known information. 18) conjecture

19) A pair of angles that have a common side and common vertex, but do not have any common interior points are called ____?____. 19) adjacent

20) The statement immediately following the word "then" in an If-then statement is called the ____?____. 20) conclusion

Use the diagram below to answer questions 21 – 25.



21) Name a pair of complementary angles. 21) $\angle BAC, \angle CAD$

22) Name a pair of vertical angles. 22) $\angle ECA, \angle FCD$

23) Name a linear pair. 23) $\angle CDA, \angle CDG$

24) Name the vertex of $\angle DCA$. 24) C

25) Name the sides of $\angle GDH$. 25) $\overrightarrow{DG}, \overrightarrow{DH}$

Consider the following statement for the problems below:

If someone drinks and drives, then s/he is at risk of causing an accident.

26) Create (2) additional statements that together with the statement above, exemplify the *Law of Detachment.*

(1) Sam drank and drove.

(2) She is at risk of causing an accident.

27) Create (2) additional statements that together with the statement above, exemplify the *Law of Syllogism.*

(1) If someone is at risk of causing an accident, then someone may be hurt.

(2) If someone drinks and drives, then someone may be hurt