

Geometry Chapter 2 Review

Name: KEY

Directions: Be sure to SHOW ALL WORK!

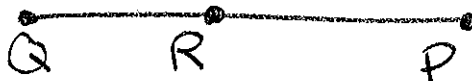
Fill in the blank.

1. Vertical angles are congruent.
2. Complementary angles equal 90° .
3. Angles that are a linear pair are supplementary or adjacent.
4. The denial of a statement is a negation.
5. Deductive reasoning is using rules of logic to reach a conclusion.
6. If $p \rightarrow q$ and $q \rightarrow r$ are true conditionals, then $p \rightarrow r$ is also true by law of sylllogism.
7. Perpendicular lines intersect to create four right angles.
8. The segments $AB + \underline{BC} = AC$.

State whether each conjecture is true or false based on the given information. If false, then give a counterexample.

9. Given: Points P, Q, and R are collinear.
Conjecture: Q is between P and R.

False



10. Given: $PQ \perp PR$
Conjecture: $\angle RPQ$ is a right angle.

True

Write the converse, inverse and contrapositive of each statement.

11. Congruent supplementary angles are right angles.

- Right angles are congruent supp. angles
- Non congruent supplementary angles are not right angles
- Angles that are not right angles are not cong. supp. \angle 's

12. If $m\angle 1 = 42^\circ$ and the $m\angle 2 = 48^\circ$, then $\angle 1$ and $\angle 2$ are complementary.

- If $\angle 1$ and $\angle 2$ are comp then $m\angle 1 = 42^\circ$ and $m\angle 2 = 48^\circ$
- If $m\angle 1 \neq 42^\circ$ and $m\angle 2 \neq 48^\circ$ then $\angle 1$ and $\angle 2$ are not complementary.
- If $\angle 1$ and $\angle 2$ are not complementary then $m\angle 1 \neq 42^\circ$ and $m\angle 2 \neq 48^\circ$.

Determine if a valid conclusion can be reached. If it can, state it and the law used. If there is not a valid conclusion then write no conclusion.

13. (1) ^{hypothesis} (If angles are supplementary) ^{conclusion} (then a there measures add up to 180° .)
 (2) $\angle A$ and $\angle B$ are supplementary - hypothesis
 (3) $m\angle A$ and $m\angle B$ equal 180° - conclusion

hypothesis
is true
then
conclusion is
true

Detachment

14. (1) (If two angles are vertical) (then they do not form a linear pair.) $p \rightarrow q$
 (2) (If two angles are vertical) (then they are congruent.) $p \rightarrow r$

No Conclusion

15. (1) ^p (If an angle has a measure less ^q (than 90 , it is acute.) $p \rightarrow q$
 (2) (If an angle is acute) (then its supplement is obtuse.) $q \rightarrow r$
 (3) (If an angle has a measure less than 90) (then its supplement is obtuse.) $p \rightarrow r$

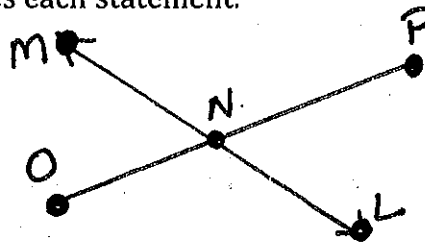
Syllogism

16. Name the property that justifies each statement.

Given: $MN = PN$

$NL = NO$

Prove: $ML = PO$



Proof:

Statements

a) $MN = PN, NL = NO$

b) $MN + NL = PN + NO$

c) $ML = MN + NL$
 $PO = PN + NO$

d) $ML = PO$

Reasons

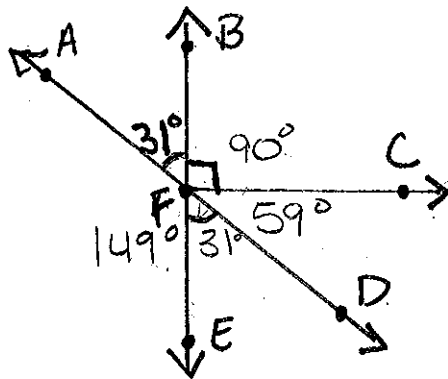
a) Given

b) Substitution

c) Seg. Add. Post.

d) Substitution

17. Name the measure of each missing angle.



a) $m\angle EFD = 31^\circ$ by vertical angles

b) $m\angle BFD = 149^\circ$ $\angle BFC + \angle CFD$

c) $m\angle AFE = 149^\circ$ $m\angle AFB + m\angle AFE = 180$

d) $m\angle AFC = 121^\circ$ $m\angle AFB + m\angle BFC$

Complete each statement with always, sometimes, or never.

18. If two angles are right angles, they sometimes are adjacent.

19. IF two angles are complementary, they are never right angles.

20. Vertical angles are never adjacent.

Find the measure of each numbered angle.

21. $m\angle 7 = x$ and $m\angle 8 = 6x - 290$

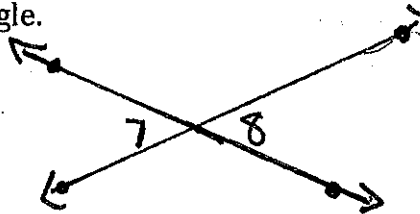
$$x = 6x - 290$$

$$5x = 290$$

$$x = 58$$

$$m\angle 7 = 58^\circ$$

$$m\angle 8 = 58^\circ$$



$\angle 7 \cong \angle 8$ are vertical angles.

22. $m\angle 1 = 4x$ and $m\angle 2 = 2x - 6$

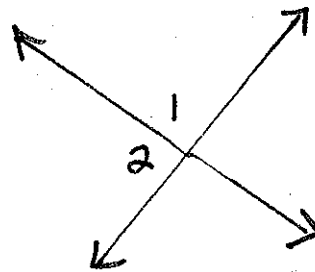
$$4x + 2x - 6 = 180$$

$$6x = 186$$

$$x = 31$$

$$m\angle 1 = 4(31) = 124^\circ$$

$$m\angle 2 = 2(31) - 6 = 56^\circ$$



$\angle 1 \supset \angle 2$ are a linear pair