Name: Key Class: _____ Date: _____ ID: A

Geometry Proof and Logic Review

Multiple Choice
Identify the choice that best completes the statement or answers the question.

C 1. Choose the property that justifies the statement.
If $\overline{GH} \cong \overline{FD}$ *and* $\overline{FD} \cong \overline{CB}$, *then* $\overline{GH} \cong \overline{CB}$.
a. Reflexive
b. Symmetric
c. Substitution/Transitive
d. Def. of ≅ segments

Choose the property that justifies the statement.

D 2. If $3x = 6$, then $x = 2$.
a. Transitive/substitution
b. Subtraction
c. Square root
d. Division

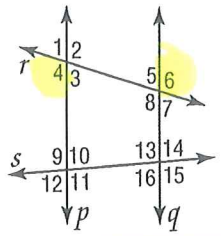
B 3. If $x + 4 = 6$, then $x = 2$.
a. Transitive/substitution
b. Subtraction
c. Addition
d. Division

C 4. If $x - 4 = 6$, then $x = 10$.
a. Transitive/substitution
b. Subtraction
c. Addition
d. Division

C 5. If $m\angle A = 10$ and $m\angle B = 10$, then $m\angle A = m\angle B$.
a. Reflexive
b. Symmetric
c. Substitution
d. Equality

Refer to the figure below. Identify the special name for each angle.

A 6. $\angle 4 \cong \angle 6$



a. // lines form ≅ alternate exterior <s
b. // lines form ≅ alternate interior <s
c. // lines form suppl. con. interior <s
d. // lines form ≅ corresponding <s

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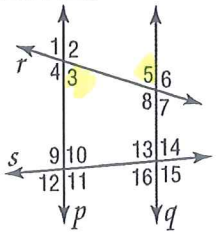
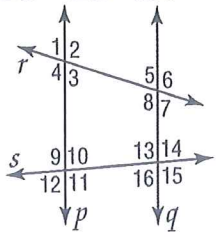
B 7. $\angle 3 \cong \angle 5$



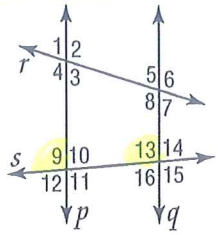
a. // lines form ≅ alternate exterior <s
b. // lines form ≅ alternate interior <s
c. // lines form suppl. con. interior <s
d. // lines form ≅ corresponding <s

C 8. $\angle 3 + \angle 8 = 180°$



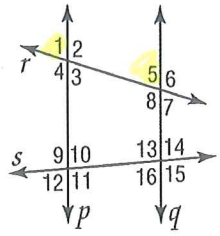
a. // lines form ≅ alternate exterior <s
b. // lines form ≅ alternate interior <s
c. // lines form suppl. con. interior <s
d. // lines form ≅ corresponding <s

D 9. $\angle 9 \cong \angle 13$



a. // lines form ≅ alternate exterior <s
b. // lines form ≅ alternate interior <s
c. // lines form suppl. con. interior <s
d. // lines form ≅ corresponding <s

A 10. Given $\angle 1 \cong \angle 5$, which justifies that $p \parallel q$?



a. ≅ corresponding Angles form // lines
b. // lines form ≅ corresponding angles
c. // lines form ≅ alternate exterior angles
d. ≅ alternate exterior angles form // lines

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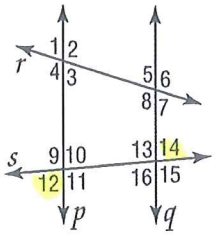
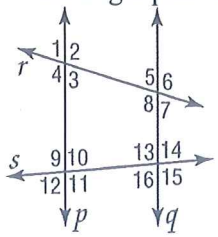
A 11. If $\angle 12 \cong \angle 14$, which justifies that $p \parallel q$?



a. // lines form ≅ alternate exterior angles
b. // lines form ≅ corresponding angles
c. ≅ alternate exterior angles form // lines
d. ≅ corresponding Angles form // lines

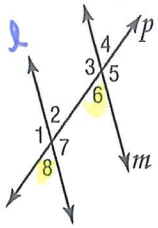
B 12. If $p \parallel q$ by the Consecutive Interior Angles Theorem: // lines form supplementary consecutive interior angles, which angle pair must be supplementary?



a. $\angle 3 + \angle 10 = 180$
b. $\angle 3 + \angle 8 = 180$
c. $\angle 8 + \angle 13 = 180$
d. $\angle 15 + \angle 16 = 180$

Refer to the figure below.

D 13. Which angle relationship justifies that $\ell \parallel m$?



a. $\angle 1 \cong \angle 7$ bc // lines form ≅ vertical <s
b. $\angle 3 \cong \angle 4$ bc // lines form ≅alternate exterior angles
c. $\angle 4 \cong \angle 5$ bc // lines form ≅ linear pairs
d. $\angle 6 \cong \angle 8$ bc // lines form ≅corresponding angles

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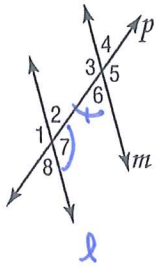
14. Given $m\angle 6 + m\angle 7 = 180$, which postulate or theorem justifies that $\ell \parallel m$?

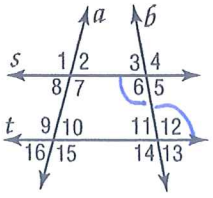


a. suppl. consecutive interior angles form // lines ✓
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles

Refer to the figure below. Identify the special name for each angle pair.

E

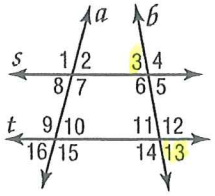
15. Given $\angle 6 \cong \angle 12$, which postulate or theorem justifies that s || t?



a. suppl. consecutive interior angles form // lines
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles
e. ≅ alternate interior angles form // lines
f. ≅ alternate exterior angles form // lines
g. // lines form ≅ alternate interior angles
h. // lines form ≅ corresponding angles

F

16. Given $\angle 3 \cong \angle 13$, which postulate or theorem justifies that s || t?



a. suppl. consecutive interior angles form // lines
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles
e. ≅ alternate interior angles form // lines
f. ≅ alternate exterior angles form // lines
g. // lines form ≅ alternate interior angles
h. // lines form ≅ corresponding angles

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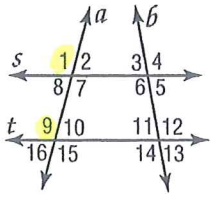
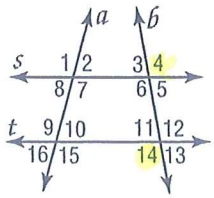
B 17. Given $\angle 1 \cong \angle 9$, which postulate or theorem justifies that s || t?



a. suppl. consecutive interior angles form // lines
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles
e. ≅ alternate interior angles form // lines
f. ≅ alternate exterior angles form // lines
g. // lines form ≅ alternate interior angles
h. // lines form ≅ corresponding angles

F 18. Given $\angle 14 \cong \angle 4$, which postulate or theorem justifies that s || t?



a. suppl. consecutive interior angles form // lines
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles
e. ≅ alternate interior angles form // lines
f. ≅ alternate exterior angles form // lines
g. // lines form ≅ alternate interior angles
h. // lines form ≅ corresponding angles

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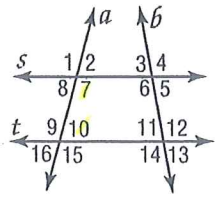
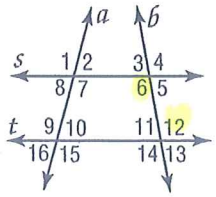
19. Given $\angle 7 + \angle 10 = 180$, which postulate or theorem justifies that s || t?



a. suppl. consecutive interior angles form // lines
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles
e. ≅ alternate interior angles form // lines
f. ≅ alternate exterior angles form // lines
g. // lines form ≅ alternate interior angles
h. // lines form ≅ corresponding angles

E

20. Given $\angle 6 \cong \angle 12$, which postulate or theorem justifies that s || t?



a. suppl. consecutive interior angles form // lines
b. ≅ corresponding Angles form // lines
c. // lines form suppl. consecutive interior angles
d. // lines form ≅ alternate exterior angles
e. ≅ alternate interior angles form // lines
f. ≅ alternate exterior angles form // lines
g. // lines form ≅ alternate interior angles
h. // lines form ≅ corresponding angles

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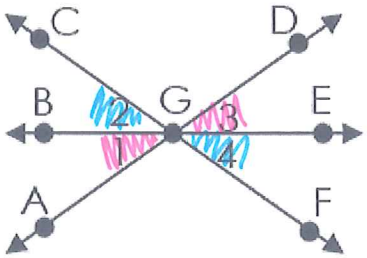
Short Answer
Write a proof for each of the following.

21.

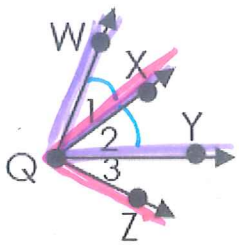
Given: $\angle 1 \cong \angle 4$
Prove: $\angle 2 \cong \angle 3$



Statement	Reason
1. $\angle 1 \cong \angle 4$	1. Given
2. $\angle 1 \cong \angle 3$	2. Vertical $\angle$s are $\cong$
3. $\angle 4 \cong \angle 3$	3. Substitution
4. $\angle 2 \cong \angle 4$	4. Vertical $\angle$s are $\cong$
5. $\angle 2 \cong \angle 3$	5. Substitution

22.

Given: $\overrightarrow{QX}$ bisects $\angle WQY$
Prove: $m\angle XQZ = m\angle 1 + m\angle 3$



Statement	Reason
1. $\overrightarrow{QX}$ bisects $\angle WQY$	1. Given
2. $\angle 2 \cong \angle 1$	2. def of $\angle$ bisector
3. $\angle XQZ = \angle 2 + \angle 3$	3. angle addition
4. $\angle XQZ = \angle 1 + \angle 3$	4. substitution

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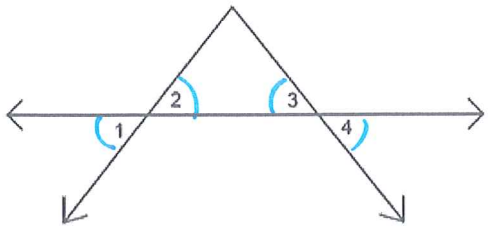
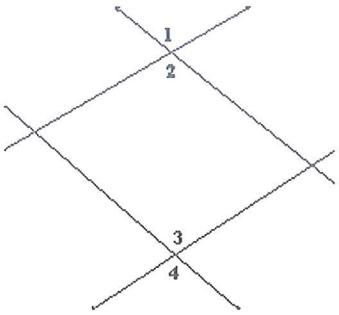
23. Given: $\angle 1 \cong \angle 4$
Prove: $\angle 2 \cong \angle 3$



1. $\angle 1 \cong \angle 4$	1. Given
2. $\angle 1 \cong \angle 2$ $\angle 4 \cong \angle 3$	2. vertical $\angle$s are $\cong$
3. $\angle 2 \cong \angle 3$	3. substitution

24. Given: $\angle 1 \cong \angle 4$
Prove: $\angle 2 \cong \angle 3$



1. $\angle 1 \cong \angle 4$	1. Given
2. $\angle 1 \cong \angle 2$ $\angle 4 \cong \angle 3$	2. vertical $\angle$s are $\cong$
3. $\angle 2 \cong \angle 3$	3. substitution

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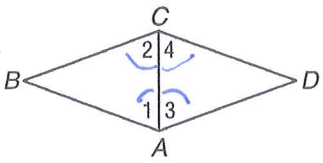
25. **Complete the proof below by supplying the reasons for each location.**



Given: $\overline{AC}$ bisects $\angle BAD$.
$\overline{AC}$ bisects $\angle BCD$.
$\angle 1 \cong \angle 2$
Prove: $\angle 3 \cong \angle 4$

Statements	Reasons
1. $\overline{AC}$ *bisects* $\angle BAD$.	1. Given
2. $\overline{AC}$ bisects $\angle BCD$.	2. Given
3. $\angle 1 \cong \angle 2$	3. Given
4. $\angle 1 \cong \angle 3$ and $\angle 2 \cong \angle 4$	4. def of $\angle$ bisector
5. $\angle 3 \cong \angle 4$	5. substitution

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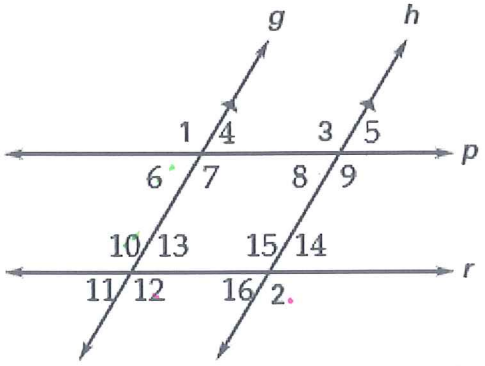
30. Directions: Given the figure, describe if g // h or p // r based on the information provided.



a. <3 ≅ <7 g // h because ≅ alt. int. ∠s form // lines.

b. <12 ≅ <7 p // r because ≅ corr. ∠s form // lines

c. <1 ≅ <12 p // r because ≅ alt. ext. ∠s form // lines

d. <11 ≅ <14 g // h because ≅ alt. ext. ∠s form // lines.

e. <12 ≅ <12 g // h because ≅ corr ∠s form // lines.

f. <6 + <10 = 180 p // r because suppl. con. int ∠s form // lines.

g. <8 + <15 = 180 p // r because suppl. con. int ∠s form // lines.