

Name: Key

Date:

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HW #3-5: Quiz Review

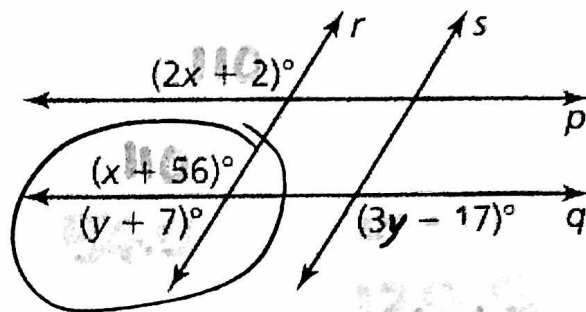
(GeoH)

1. Answer #1-16 on pg. 146 of your textbook on a separate piece of paper.

2. Given the diagram...

a. Find the value of x that makes $p \parallel q$

$$x = 54$$



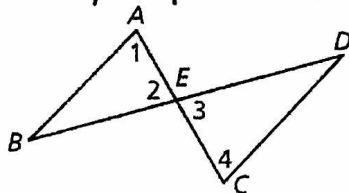
b. Find the value of y that makes $r \parallel s$

$$y = 47.5$$

c. Can r be parallel to s and can p be parallel to q at the same time? Explain your reasoning.

No! If this were true, then the $\angle$'s are as follows (see diagram). more specifically, the $\angle$ s circled would not be supp, which is necessary because they form a linear pair.

3. Given: $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$
Prove: $\overline{AB} \parallel \overline{CD}$



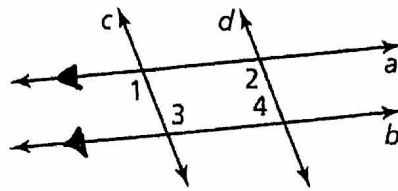
Statements

Reasons

- ① $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$
- ② $\angle 2 \cong \angle 3$
- ③ $\angle 1 \cong \angle 3$
- ④ $\angle 1 \cong \angle 4$
- ⑤ $\overline{AB} \parallel \overline{CD}$

- ① given
- ② vert. $\angle$ s are $\cong$
- ③ Trans. prop. $\cong$
- ④ Trans. prop. $\cong$
- ⑤ alt. int. $\angle$ s $\cong \rightarrow \parallel$

4. Given: $a \parallel b$ and $\angle 2 \cong \angle 3$
 Prove: $c \parallel d$



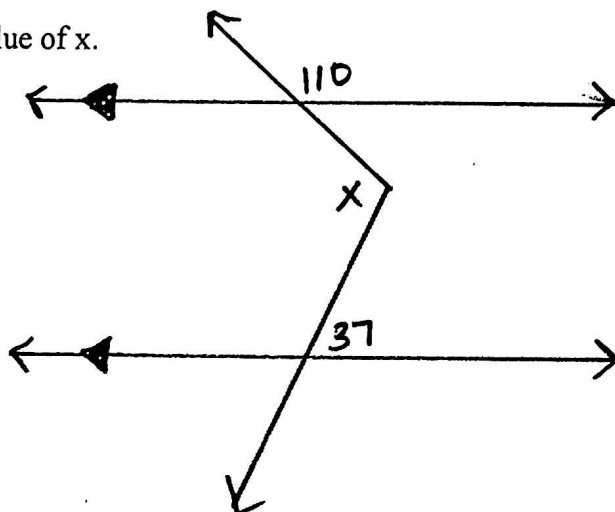
Statements	Reasons
① $a \parallel b$ and $\angle 2 \cong \angle 3$	① given
② $\angle 1 \cong \angle 3$	② $\parallel \rightarrow$ alt. int. $\angle s \cong$
③ $\angle 1 \cong \angle 2$	③ Trans. prop. $\cong$
④ $c \parallel d$	④ corresp. $\angle s \cong \rightarrow \parallel$

5. Solve the system of equations.

$$\begin{aligned} 8x + 14y &= 4 \\ -6x - 7y &= -10 \end{aligned}$$

$$(4, -2)$$

6. Find the value of x .



$$x = 117$$

3.1–3.3 Quiz (p. 146)

1. $\overleftrightarrow{GH}$ is parallel to $\overleftrightarrow{EF}$.
2. $\overleftrightarrow{FG}$ is perpendicular to $\overleftrightarrow{EF}$.
3. $\overleftrightarrow{GC}$ is skew to $\overleftrightarrow{EF}$.
4. Plane GCB is parallel to plane ADF . Any three of the four points G , C , B , and F can be used to form the parallel plane.
5. $\angle 3$ and $\angle 5$, and $\angle 4$ and $\angle 6$ are consecutive interior angles.
6. $\angle 3$ and $\angle 6$, and $\angle 4$ and $\angle 5$ are alternate interior angles.
7. $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$, and $\angle 4$ and $\angle 8$ are corresponding angles.
8. $\angle 1$ and $\angle 8$, and $\angle 2$ and $\angle 7$ are alternate exterior angles.

9. By the Linear Pair Postulate (Post. 2.3):

$$m\angle 1 + 138^\circ = 180^\circ$$

$$m\angle 1 = 42^\circ$$

By the Alternate Exterior Angles Theorem (Thm. 3.3):

$$m\angle 1 = m\angle 2 = 42^\circ$$

10. $m\angle 1 = 123^\circ$ by the Corresponding Angles Theorem (Thm. 3.1).

$m\angle 2 = 123^\circ$ by the Vertical Angle Congruence Theorem (Thm. 2.6).

11. By the Linear Pair Postulate (Post. 2.8):

$$m\angle 1 + 57^\circ = 180^\circ$$

$$m\angle 1 = 123^\circ$$

$m\angle 2 = 57^\circ$ by the Alternate Interior Angles Theorem (Thm. 3.2).

12. yes; Consecutive Interior Angles Converse (Thm. 3.8)
($69^\circ + 111^\circ = 180^\circ$)

13. no

14. yes; Transitive Property of Parallel Lines (Thm. 3.9)

15. a. All of the bars are parallel to each other by the Transitive Property of Parallel Lines (Thm. 3.9).

b. $\angle 1$ corresponds to $\angle 2$ by the Corresponding Angles Theorem (Thm. 3.1). So, $m\angle 1 = m\angle 2 = 58^\circ$.

16. a. *Sample answer:* $q \parallel p$ and $m \parallel k$

b. *Sample answer:* $n \perp m$ and $n \perp k$

c. *Sample answer:* Lines k and q are skew, and lines ℓ and m are skew.

d. Because $m \parallel k$, $\angle 1 \cong \angle 2$ by the Alternate Exterior Angles Theorem (Thm. 3.3).