Correct Parallel Lines and Transversals ws

Parallel Lines and Transversals ws Date_____ Hour____

Identify each pair of angles as corresponding, alternate interior, alternate exterior, consecutive interior, vertical, or adjacent.

1) consecutive interior ★2) vertical

3) adjacent 4) corresponding

★5) alternate interior 6) adjacent

7) corresponding ★8) alternate exterior

Find the measure of each angle indicated.

9) 122° ★10) 116°

11) 129° 12) 128°

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13) 61° 14) 90°

15) 130° 16) 132°

Solve for x.

17) 7 ★18) −10

19) 8 20) 10

21) −7 ★22) 3

23) 7 ★24) 9

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Standard 6A Proofs about Lines & Angles and Standard 6B Proofs about Parallel Lines & Transversals Review

A. Complementary Angles
B. Congruent
C. Midpoint
D. Supplementary Angles
E. Angle Bisector
F. Linear Pair
G. Segment Addition Postulate
H. Transitive Property
I. Symmetric Property
J. Reflexive Property
K. Same Side Interior Angles
L. Vertical Angles
M. Angle Addition Postulate
N. Alternate Interior Angles
O. Alternate Exterior Angles
P. Corresponding Angles

1-14. Fill in the blank with the correct vocab word.

1. A point that divides a segment into two congruent pieces: _____
2. Two angles that are adjacent and supplementary: _____
3. If a = b and b = c, then a = c _____
4. A ray that divides an angle into two congruent angles: _____
5. The larger segment is equal to the sum of the segments that comprise it. _____
6. A pair of angles that sum to 90 degrees: _____
7. Using **Figure 1**, $\angle 3 \cong \angle 7$ because they are _____
8. Using **Figure 1**, $\angle 1 \cong \angle 8$ because they are _____
9. Using **Figure 1**, $\angle 4 \cong \angle 5$ because they are _____
10. Using **Figure 1**, $\angle 4 \cong \angle 1$ because they are _____
11. Using **Figure 1**, $\angle 4 + \angle 6 = 180°$ because they are _____
12. Using **Figure 1**, $\angle 4 + \angle 2 = 180°$ because they are _____
13. If a transversal intersects two parallel lines, the same side interior angles are ____
14. Vertical angles are _____

Figure 1

15. Solve for x

16. Given K is a midpoint Solve for x

17. Solve for x

18. Solve for x

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19-27. Prove the following using the given statements and reasons.

Given: JK = 5x + 1
Prove: x = 4

Statements	Reasons
19.	Given
20.	Segment Addition Postulate
12 + x + 5 = 5x +1	21.
22.	Substitution Property
17 = 4x + 1	23.
24.	Subtraction Property of Equality
25.	26.
x = 4	27.

Possible Statements:
16 = 4x
17 + x = 5x + 1
JL + LK = JK
JL + JK = LK
7 + x = 5x + 1
JK = 5x + 1

Possible Reasons:
Substitution Property
Segment Addition Postulate
Symmetric Property of Equality
Subtraction Property of Equality
Division Property of Equality
Addition Property of Equality
Given

28-31. Prove the following using the given statements and reasons

Given: ∠2 ≅ 28° and ∠2 ≅ ∠4
Prove: ∠7 ≅ 28°

Statements	Reasons
28.	Given
∠7 ≅ ∠4	29.
30.	Transitive Property of Congruence
∠7 ≅ 28°	31.

Possible Statements:
∠7 ≅ ∠2
∠3 ≅ ∠6
∠2 ≅ 28° and ∠2 ≅ ∠4
∠7 + ∠6 + ∠5 ≅ 180°
∠4 ≅ ∠7

Possible Reasons:
Angle Addition Postulate
Definition of a linear pair
Substitution Property
Vertical Angles are Congruent
Transitive Property of Congruence

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What value of x makes u || v?

32. 33. 34.

Complete the proof below for 22-27.

Given: ∠1 ≅ ∠2
∠3 ≅ ∠4
Prove: $\overline{AB} \parallel \overline{CD}$

Statement	Reason
35.	Given
∠2 ≅ ∠3	36.
37.	Transitive Property
∠3 ≅ ∠4	38.
39.	Transitive Property
$\overline{AB} \parallel \overline{CD}$	40.

Possible Statements:
- ∠1 ≅ ∠4
- ∠1 ≅ ∠3
- ∠1 ≅ ∠2
- ∠2 ≅ ∠4

Possible Reasons:
- Converse of Corresponding Angles Theorem
- Given
- Definition of a Linear Pair
- Vertical Angles are Congruent
- Transitive Property
- Converse of Alternate Interior Angles Theorem

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41-51. Fill in the blanks with the correct responses from the list of possibilities.

Given: ∠3 ≅ ∠1, ∠2 ≅ ∠3
Prove: $\overline{EG} \parallel \overline{BH}$

Statement	Reason
∠3 ≅ ∠1, ∠2 ≅ ∠3	41.
∠1 ≅ ∠2	42.
∠1 ≅ ∠2 are Corresponding Angles	43.
$\overline{EG} \parallel \overline{BH}$	44.

Possible Reasons:
- ✓ Vertical angles are congruent
- ✓ Substitution property of equality
- ✓ Given
- ✓ Transitive Property of Congruence
- ✓ If || lines, Alternate Interior Angles are congruent
- ✓ Definition of Corresponding Angles
- ✓ If Corresponding Angles are congruent then the lines are parallel

Given: m∠3 = 60 , m∠5 = 2x − 8 , a || b
Prove: x = 64

Statement	Reason
m∠3 = 60 , m∠5 = 2x − 8 , a || b	45.
180 = m∠3 + ∠5	46.
47.	Substitution property of equality
180 = 52 + 2x	48.
49	Subtraction property of equality
50.	Division property of equality
51.	Symmetric property of equality

Statements:
64 = x
180° = 60 + 2x − 8
64 = x
x = 64
128 = 2x

Reasons:
Vertical angles are congruent
Substitution property of equality
Given
Addition property of equality
If || lines, Same Side Interior Angles are Supplementary
Subtraction property of equality

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