

You may complete on separate paper.

Name: _____
Period: _____

1. State the **converse** of each statement. Note, all these converses are TRUE!

a) If lines are \parallel then the corres \angle 's are \cong .	b) If lines are \parallel then the alt int \angle 's are \cong
c) If lines are \parallel then the same-side int \angle 's are sup.	d) If lines are \parallel then the alt ext \angle 's are \cong

For 2-4: Based on the markings which lines or segments must be parallel? Justify your answer.

2.

3.

4.

5. Find x and determine if n is parallel to m . Justify.

6. Find x , and determine if AD is parallel to BC . Justify.

7. Fill in the blank to make the statement true.

- $\angle 4$ and _____ are alternate interior angles.
- $\angle 3$ and _____ are same-side interior angles.
- $\angle 7$ and _____ are corresponding angles.
- $\angle 7$ and _____ are alternate exterior angles.
- $\angle 8$ and _____ are vertical angles.
- $\angle 1$ and _____ are a linear pair.

8. Using the digram at left, if $m\angle 1 = 110^\circ$ then...

- $m\angle 5 =$ _____
- $m\angle 8 =$ _____
- $m\angle 6 =$ _____

Solve the following angle puzzles. No protractors. Figures may not be drawn to scale.

9.

$m\angle 1 =$ _____
$m\angle 2 =$ _____
$m\angle 3 =$ _____
$m\angle 4 =$ _____
$m\angle 5 =$ _____
$m\angle 6 =$ _____
$m\angle 7 =$ _____
$m\angle 8 =$ _____
$m\angle 9 =$ _____
$m\angle 10 =$ _____

10.

$m\angle 1 =$ _____	$m\angle 2 =$ _____
$m\angle 3 =$ _____	$m\angle 4 =$ _____
$m\angle 5 =$ _____	$m\angle 6 =$ _____

For 11-13: Write and solve equations to find the value of each variable.

11. If $g \parallel h$ find x .

12.

13.

Ch. 2: Review

14. Write the converse:
If a polygon is a trapezoid, then it has four sides.

15. Write the contrapositive:
If you are taking algebra, then Mrs. Nash is not your teacher.

16. Which of the following is a **counterexample** to the statement:
If you have 25 cents, then you have two dimes and a nickel.

- 20 pennies
- 25 dimes
- 5 nickels
- 2 quarters

Proof

17. **Given:** $\angle 1$ and $\angle 2$ are supplementary
 $\overline{TE} \perp \overline{ND}$ **Prove:** $\angle 1 \cong \angle 2$

	Statements	Reasons
1	$\angle 1$ and $\angle 2$ are supplementary	
2	$m\angle 1 + m\angle 2 = 180^\circ$	
3	$\overline{TE} \perp \overline{ND}$	
4	$m\angle 1 = 90^\circ$	
5	$90^\circ + m\angle 2 = 180^\circ$	
6	$m\angle 2 = 90^\circ$	
7	$m\angle 1 = m\angle 2$	
8	$\angle 1 \cong \angle 2$	

Choices:

- Definition of Congruence
- Given
- Definition of Supplementary
- Definition of Perpendicular
- Substitution Property of Equality
- Substitution Property of Equality
- Subtraction Property of Equality
- Given

Algebra Review: Simplify each expression.

18. Find the equation of the line using the Point-Slope Formula. Change it to Slope-Intercept Form then find the x and y intercepts.

19. $\left(3 - \frac{5}{3}\right)^2$

20. $5\left(\frac{1}{2}\right)^2 - 3\left(\frac{1}{2}\right)$

21. $\sqrt{5}\sqrt{2}$

23. $\sqrt{18} + \sqrt{8} + \sqrt{20}$

22. $\sqrt{27}$

24. $\sqrt{25} + 3\sqrt{4}$

25. Factor: $5x^2 - 14x + 8$