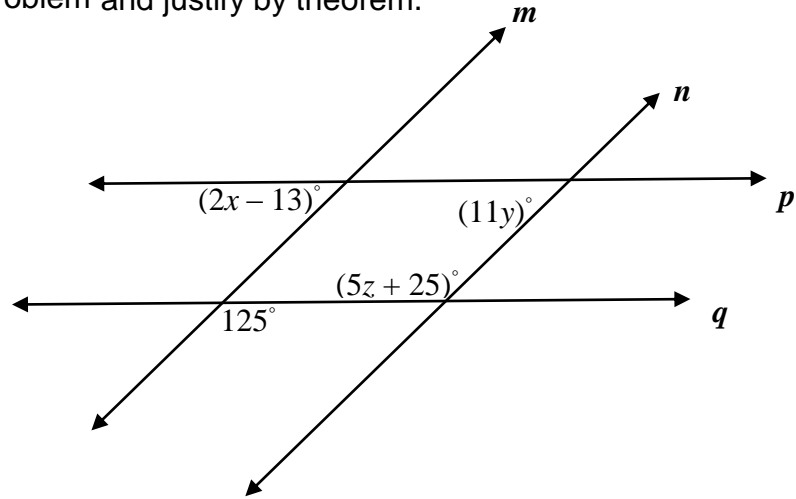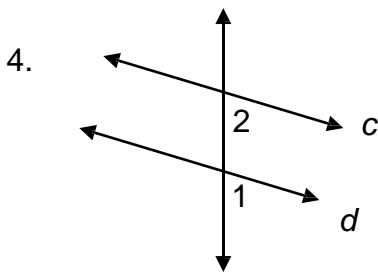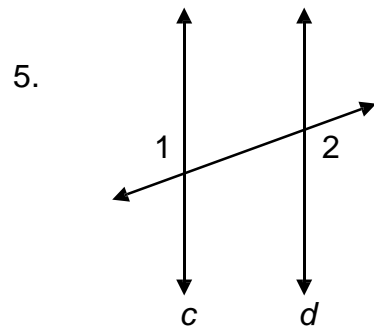Name_____Date_____Period_____

Proving Parallel Lines

Find the values of $x$, $y$, and $z$ in the figure below to ensure $m \parallel n$ and $p \parallel q$. Name each type of angle pair you used to solve each problem and justify by theorem.
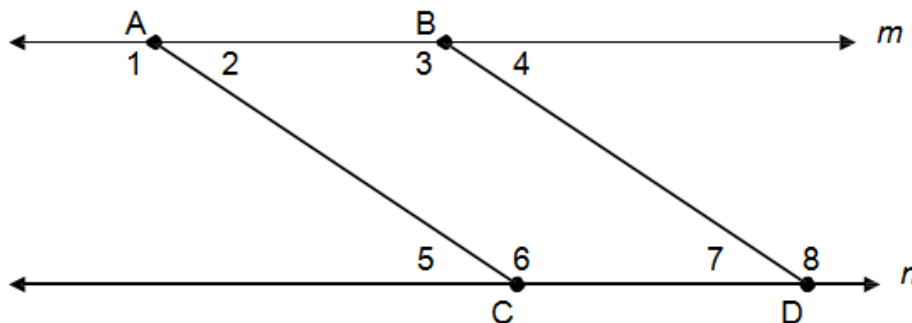


$m$

$n$

$p$

$(2x - 13)°$

$(11y)°$

$(5z + 25)°$

$125°$

$q$

| 1. Find $x$-value | 2. Find $y$-value | 3. Find $z$-value |
|---|---|---|
|  |  |  |
| Type of Angle Pair | Type of Angle Pair | Type of Angle Pair |
|  |  |  |

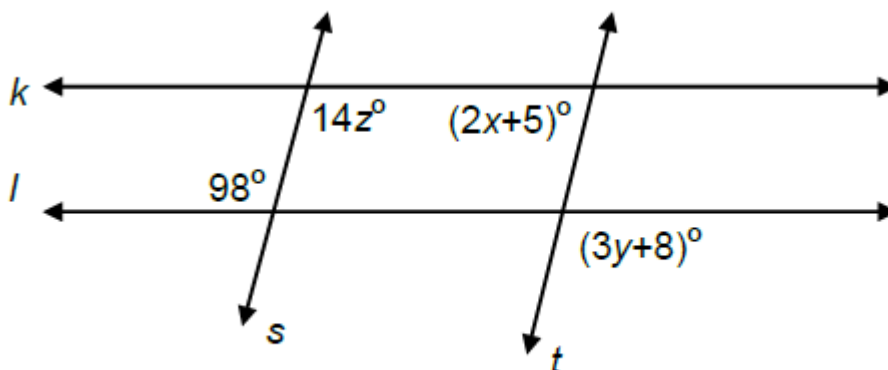Name the angle pair modeled here.

4.



2

$c$

1

$d$

_____

5.



1

2

$c$

$d$

_____

6. In the figure below $m \parallel n$, $AC \parallel BD$, $m\angle 1 = 148°$ and the measure of the other angles.



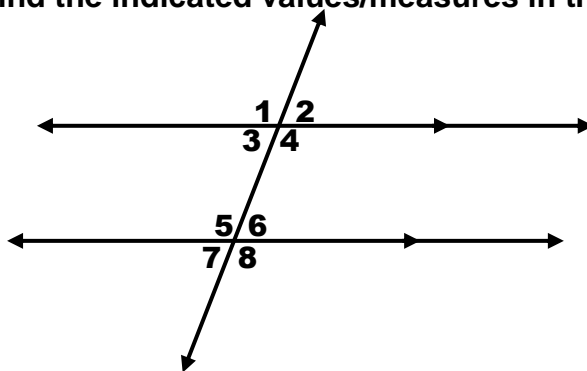$\angle 1 =$ _____        $\angle 2 =$ _____        $\angle 3 =$ _____        $\angle 4 =$ _____

$\angle 5 =$ _____        $\angle 6 =$ _____        $\angle 7 =$ _____        $\angle 8 =$ _____

7.  Find the values of $x$, $y$, and $z$ in the figure below to ensure $k \parallel l$ and $s \parallel t$. Name each type of angle pair you used to solve each problem and justify by theorem.



| 6. Find $x$-value | 7. Find $y$-value | 8. Find $z$-value |
|---|---|---|
|  |  |  |
| Type of Angle Pair | Type of Angle Pair | Type of Angle Pair |
|  |  |  |

**Use the figure below to find the indicated values/measures in the problems that follow.**



| | |
|---|---|
| 9. x = _____<br><br>m∠6 = _____ | If m∠1 = (11x + 2)° and m∠7 = (8x + 7)°, find the value of 'x' and the m∠6. |
| 10. x = _____<br><br>m ∠5 = _____ | If m∠2 = (4x − 7)° and m∠7 = (3x + 4)°, find the value of 'x' and the m∠5. |
| 11. x = _____<br><br>m∠2 = _____ | If m∠3 = (5x + 12)° and m∠7 = (8x)° find the value of 'x' and m∠2. |
| 12. x = _____<br><br>m∠7 = _____ | If m∠3 = (7x + 1)° and m∠8 = (19x − 3)°, find the value of 'x' and m∠7. |

**ALWAYS, SOMETIMES, NEVER**
**Determine whether each of the following statements is ALWAYS, SOMETIMES, or NEVER true.**

| | |
|---|---|
| _____13. | Vertical angles are _____ congruent. |
| _____14. | Transversals _____ intersect two or more lines at the same point. |
| _____15. | Corresponding angles are _____ supplementary. |
| _____16. | Linear pairs are _____ supplementary. |