

Angle Relationships

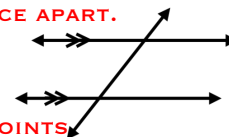
SECONDARY MATH II NOTES

Complementary Angles: TWO ANGLES ARE COMPLEMENTARY WHEN THEIR MEASURES ADD UP TO 90 DEGREES

Supplementary Angles: TWO ANGLES ARE SUPPLEMENTARY WHEN THEIR MEASURES ADD UP TO 180 DEGREES

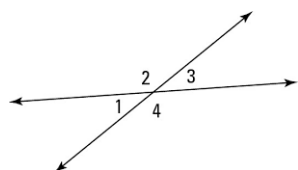
Parallel Lines: TWO LINES ON A PLANE THAT NEVER MEET. THEY ARE ALWAYS THE SAME DISTANCE APART.

Notation: $a \parallel b$

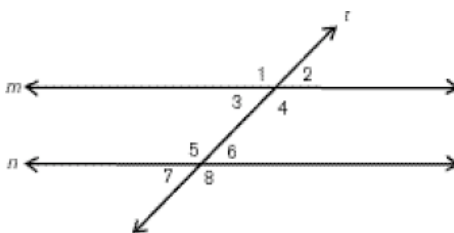


Transversal: A LINE THAT PASSES THROUGH TWO LINES IN THE SAME PLANE AT TWO DISTINCT POINTS

Vertical Angles: PAIRS OF OPPOSITE ANGLES MADE BY TWO INTERSECTING LINES.



List all of the vertical angles

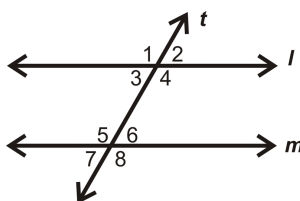


- $\angle 1$ & $\angle 4$
- $\angle 2$ & $\angle 3$
- $\angle 5$ & $\angle 8$
- $\angle 6$ & $\angle 7$

Corresponding Angles:

ANGLES THAT OCCUPY THE SAME POSITION AT AN INTERSECTION OF A TRANSVERSAL AND TWO PARALLEL LINES

List all of the corresponding angles

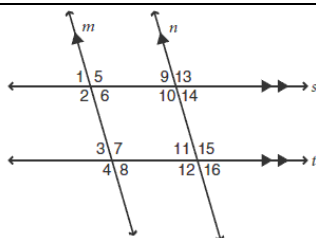


- $\angle 1$ & $\angle 5$
- $\angle 2$ & $\angle 6$
- $\angle 3$ & $\angle 7$
- $\angle 4$ & $\angle 8$

Alternate Interior

Angles: THE PAIRS OF ANGLES ON OPPOSITE SIDES OF THE TRANSVERSAL BUT INSIDE THE TWO PARALLEL LINES

List all of the Alternate Interior Angles

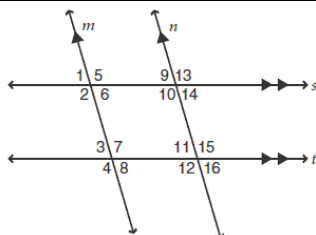


- $\angle 2$ & $\angle 7$
- $\angle 6$ & $\angle 3$
- $\angle 10$ & $\angle 15$
- $\angle 14$ & $\angle 11$

Alternate Exterior Angles:

THE PAIRS OF ANGLES ON OPPOSITE SIDES OF THE TRANSVERSAL BUT OUTSIDE THE TWO PARALLEL LINES

List all of the Alternate Exterior Angles

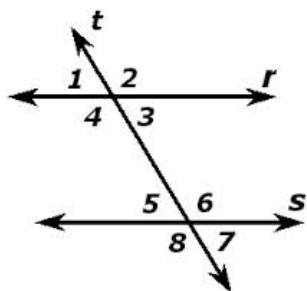


- $\angle 1$ & $\angle 8$
- $\angle 5$ & $\angle 4$
- $\angle 9$ & $\angle 16$
- $\angle 13$ & $\angle 12$

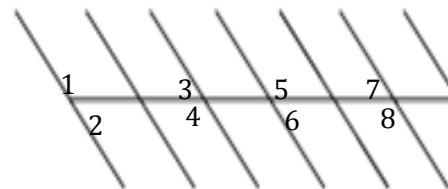
Using angle relationships to find angle measures

Assume $r \parallel s$. True or False: $\angle 1 \cong \angle 7$.
Explain your answer.

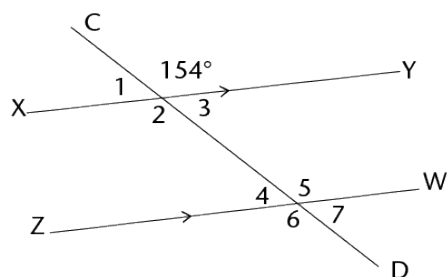
TRUE. SINCE $r \parallel s$ $\angle 1 \cong \angle 7$
BECAUSE THEY ARE ALTERNATE
EXTERIOR ANGLES



Explain how $\angle 1 \cong \angle 8$. ****ANSWERS WILL VARY****
 $\angle 1$ IS A CORRESPONDING ANGLE TO $\angle 5$ AND TO
THE ANGLE SUPPLEMENT OF $\angle 7$. THAT ANGLE IS A
VERTICAL ANGLE WITH $\angle 8$ SO THEY MUST BE
EQUAL

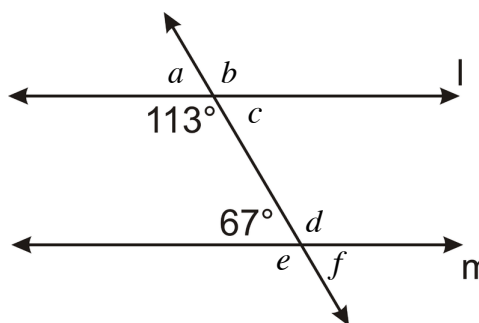


Assume $\overline{XY} \parallel \overline{ZW}$. Find the values of all missing
angle measures.



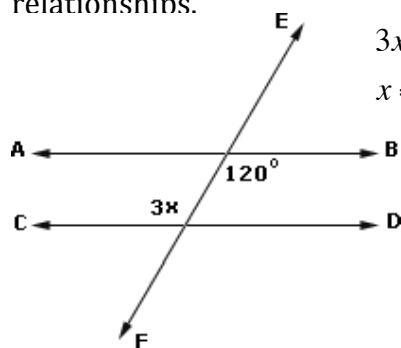
- $m\angle 2 = 154$
- $m\angle 5 = 154$
- $m\angle 6 = 154$
- $m\angle 1 = 26$
- $m\angle 3 = 26$
- $m\angle 4 = 26$
- $m\angle 7 = 26$

Assume $l \parallel m$. Find the values of all missing angle
measures.



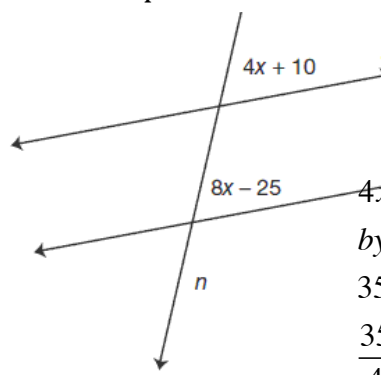
- $m\angle b = 113$
- $m\angle e = 113$
- $m\angle d = 113$
- $m\angle a = 67$
- $m\angle c = 67$
- $m\angle f = 67$

Assume $\overline{AB} \parallel \overline{CD}$. Find the value of x using angle
relationships.



$3x = 120$ (by alt. interior)
 $x = 40$

Assume $l \parallel m$. Find the value of x using angle
relationships.



$4x + 10 = 8x - 25$
by corresponding angles
 $35 = 4x$
 $\frac{35}{4} = x$