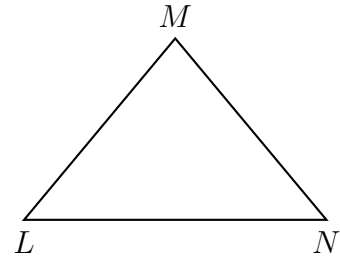


Name:

3.5 Proving the triangle sum theorem

1. Given isosceles $\triangle LMN$, $\overline{LM} \cong \overline{NM}$. If $m\angle L = 5x - 3$ and $m\angle N = 7x - 27$, find $m\angle M$.



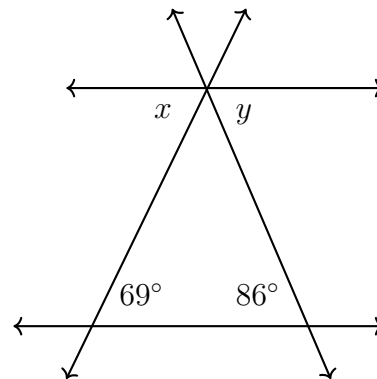
2. The measures in degrees of the three angles of a triangle are $2x$, $\frac{2}{5}x$, and $\frac{1}{10}x$. Find the measures of the triangle's angles.

3. Given two parallel lines, two transversals

(a) Find x, y

(b) What relationship are you using?

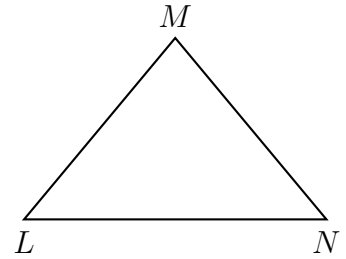
(e.g. vertical angles, same-side exterior angles, alternate interior angles, etc.)



4. A triangle has two angles measuring x° and y° respectively. Find the measure of the third angle as an expression of x and y .

2

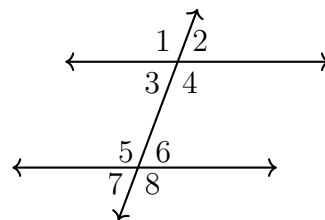
5. Given $\triangle LMN$ with $m\angle L = 2x + 20$, $m\angle N = 3x + 5$, and $m\angle M = 5x + 5$. Find x .



6. The measures in degrees of the three angles of a triangle are $3x$, $\frac{1}{2}x + 7$, and $5x - 65$. Find x .

Name:

- “alternate interior \angle s are \cong ”
- “corresponding \angle s of \parallel lines are \cong ”
- “same-side interior \angle s are supplementary”



7. Given two parallel lines and a transversal, as shown.

$\angle 4 \cong \angle 5$ $m\angle 3 + m\angle 6 = 180$ _____