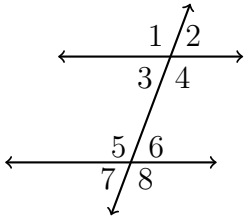
3.8 Review: Parallel lines and transversal situations

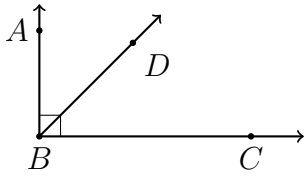
1. Do Not Solve. Circle the appropriate equation, cite a justification:

   - "vertical ∠s are ≅"
   - "definition of bisector"
   - "linear pairs sum to 180°"
   - "triangle external angle theorem"
   - "corresponding ∠s of ∥ lines are ≅"
   - "alternate interior ∠s are ≅"
   - "same-side interior ∠s are supplementary"



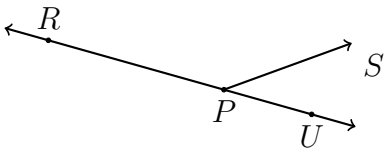
(a) Given two parallel lines intersect a transversal, as shown.

$\angle 2 \cong \angle 6$ $\quad m\angle 2 + m\angle 6 = 180$ _____



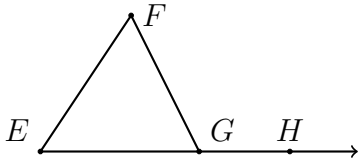
(b) Given $\overrightarrow{BA} \perp \overrightarrow{BC}$, with $\overrightarrow{BD}$ bisecting $\angle ABC$.

$\angle ABD \cong \angle DBC$ $\quad m\angle ABD + m\angle DBC = 180$ _____



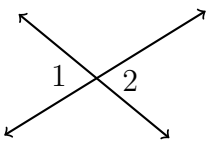
(c) $\overleftrightarrow{RPU}$ with ray $\overrightarrow{PS}$.

$\angle RPS \cong \angle SPU$ $\quad m\angle RPS + m\angle SPU = 180°$ _____



(d) Given $\triangle EFG$, with side extended as $\overrightarrow{EGH}$.

$\angle E \cong \angle F$ $\quad m\angle E + m\angle F = m\angle FGH$ _____



(e) Given $m\angle 1 = 4x + 6$, $m\angle 2 = 6x - 32$. Find $m\angle 1$.

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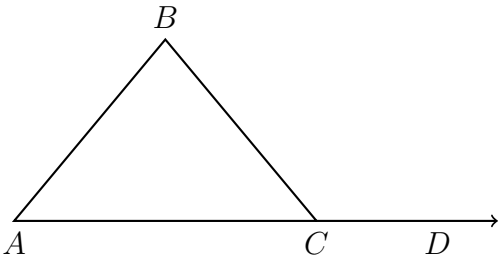
$\angle 1 \cong \angle 2$ $m\angle 1 + m\angle 2 = 180$ _____

2. Given $\triangle ABC$ with side $\overline{AC}$ extended through D as shown. Find x if $m\angle A = 31$, $m\angle B = 5x$, and $m\angle BCD = 131$.



3. The measures in degrees of the three angles of a triangle are $2x$, $\frac{7}{6}x$, and $\frac{4}{3}x$. Find the measures of the triangle's angles.

4. Given isosceles $\triangle JKL$ with $\overline{JL} \cong \overline{KL}$, and $m\angle J = 5x - 12$ and $m\angle K = 3x + 16$.
   (a) Mark the congruent sides and angles of the triangle
   (b) Find $m\angle L$