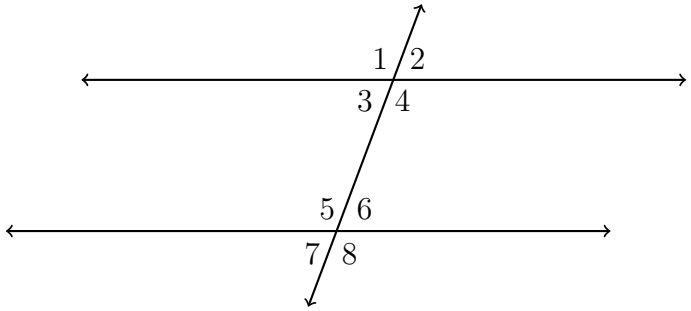
Homework: Angle relationships

1. Given two parallel lines and a transversal, as shown. Apply the theorem "If a transversal intersects two parallel lines, then corresponding angles are congruent."

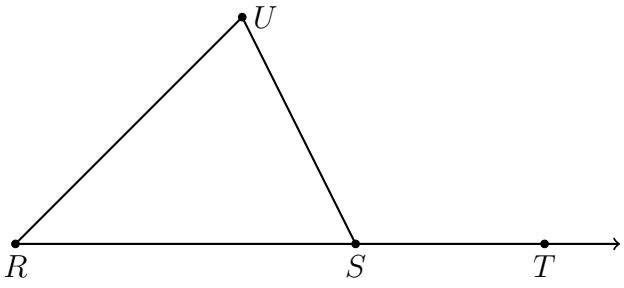


   (a) State the angle corresponding with $\angle 7$.

   (b) Given $m\angle 6 = 80°$ and $m\angle 2 = 2x°$. Find x.

   (c) Given $m\angle 5 = 100°$. Find $m\angle 3$.

2. Given $m\angle R = 45$, $m\angle U = 55$, and $m\angle UST = 100$. Find $m\angle RSU$.

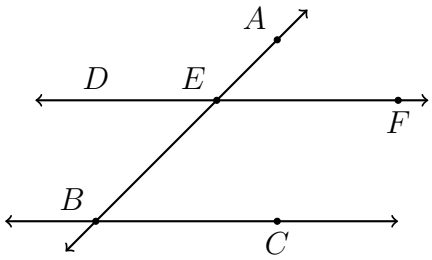


3. As shown below, two parallel lines that intersect a transversal, and $\overleftrightarrow{DF} || \overleftrightarrow{BC}$. For each question below, name the type of the pair of angles (e.g. corresponding, alternate interior, same-side exterior, etc.) and whether they are congruent or supplementary.

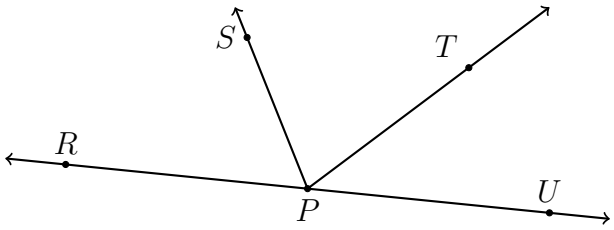
   (a) Justify $\angle ABC \cong \angle AEF$.

   (b) Justify $\angle ABC \cong \angle AED$.

   (c) Justify $\angle ABC + \angle BEF = 180°$.



4. Given the situation in the diagram, answer each question. Circle True or False.



   (a) True or False: $\angle SPU$ is an acute angle.

   (b) True or False: $\overrightarrow{RP}$ and $\overrightarrow{PU}$ are opposite rays.

   (c) True or False: $\angle RPS$ and $\angle SPU$ are a linear pair.

   (d) True or False: $\angle SPT$ and $\angle TPR$ are adjacent.

5. Find the volume of a hemisphere with a radius of three inches, to the *nearest whole cubic inch*. (The formula for the volume of a *sphere* is $V = \frac{4}{3}\pi r^3$)

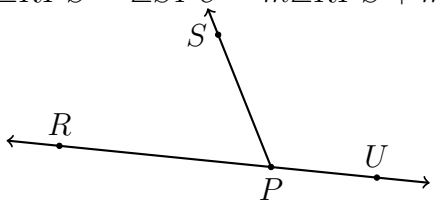
Classwork: Circle the appropriate equation and state the justification

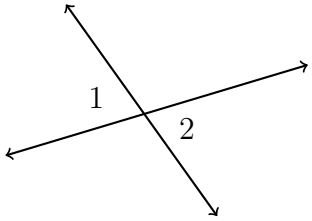
Use the postulates and theorems you have learned. You may abbreviate them as follows: "def. of bisector," "$\perp$ rays meet at 90°," "complementary $\angle$s add to 90," "linear pairs add to 180," "vertical $\angle$s are $\cong$," "corresponding $\angle$s of parallel lines are $\cong$."

1. Given corresponding angles of a transversal and two parallel lines, $\angle A$, $\angle B$.

   $\angle A \cong \angle B$ $m\angle A + m\angle B = 180°$ _____

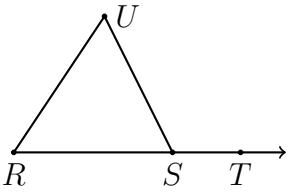
2. $\angle RPS \cong \angle SPU$ $m\angle RPS + m\angle SPU = 180°$ _____





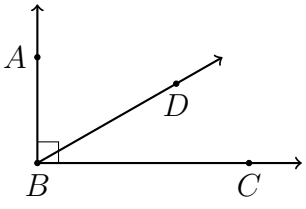
3. Given $m\angle 1 = 4x + 6$, $m\angle 2 = 6x - 32$. Find $m\angle 1$.

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



4. Given $m\angle R = m\angle U = 65$, and $m\angle UST = 130$. Find $m\angle RSU$.

   $\angle UST \cong \angle RSU$ $m\angle UST + m\angle RSU = 180$ _____



5. Given $\overrightarrow{BA} \perp \overrightarrow{BC}$, $m\angle ABD = 2x - 5$, and $m\angle DBC = x - 10$.

   $\angle ABD \cong \angle DBC$ $m\angle ABD + m\angle DBC = 90$ _____