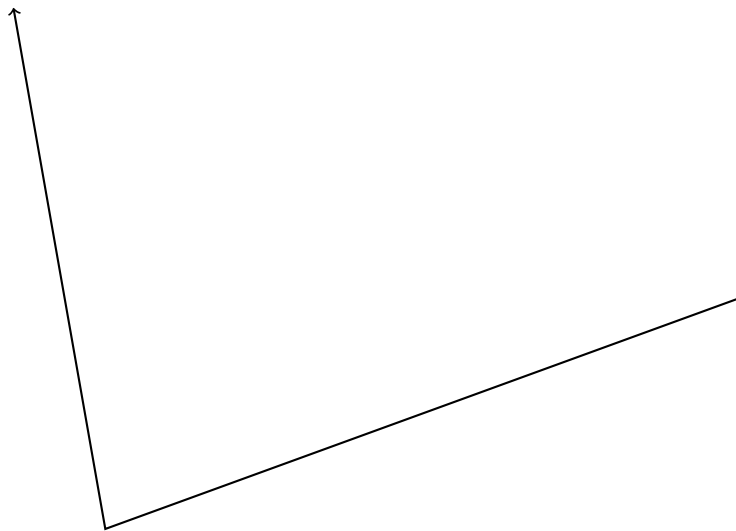


4.10 PreExam: Transversals, volume; angle relationships

1. Construct a perpendicular to l through C .

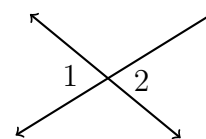


2. Complete the construction of the bisector of the given angle.



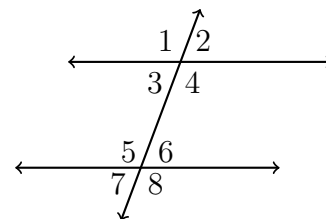
Circle the appropriate equation and state the justification

Use the postulates and theorems you have learned. You may abbreviate them as follows: “def. of bisector,” “ \perp rays with complementary \angle s adding to 90,” “linear pairs add to 180,” “vertical \angle s are \cong ,” “corresponding \angle s of \parallel lines are \cong ,” “same-side interior \angle s are supplementary,” “alternate interior \angle s are \cong .”



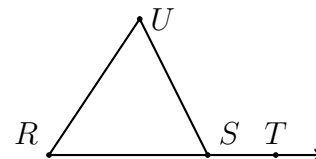
3. Given $m\angle 1 = 4x + 6$, $m\angle 2 = 6x - 32$. Find $m\angle 1$.

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



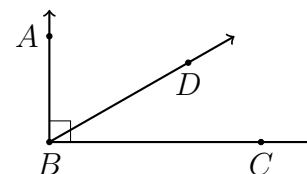
4. Given two parallel lines and a transversal, as shown.

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



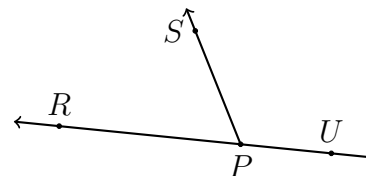
5. Given $m\angle R = m\angle U = 65$, and $m\angle UST = 130$. Find $m\angle RSU$.

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



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

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



7. \overleftrightarrow{RP} with ray \overrightarrow{PS} .

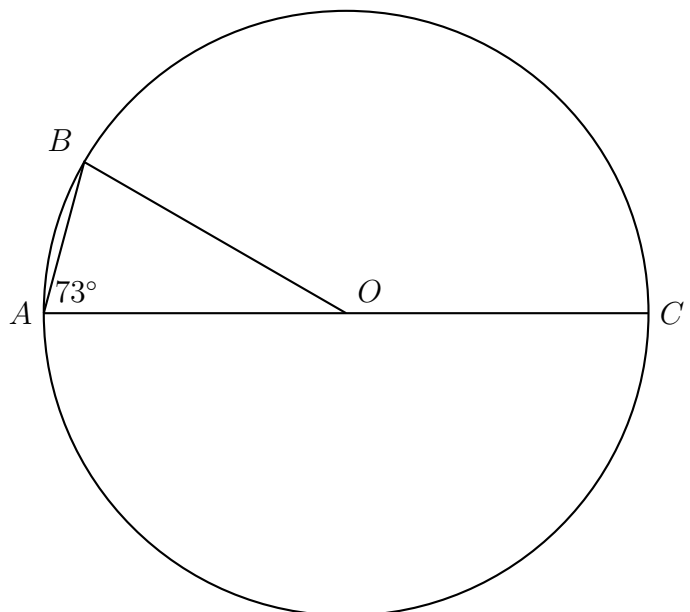
$\angle RPS \cong \angle SPU$ $m\angle RPS + m\angle SPU = 180^\circ$ _____

8. Find the sum of the measures of the internal angles of an octagon. Show the formula.

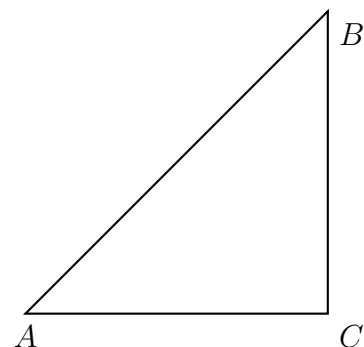
9. A metal safety deposit box is $14\frac{1}{2}$ inches long, 9 inches wide, and $2\frac{1}{2}$ inches tall. Find the volume of the box. Show the calculation.



10. The circle O is shown below with diameter \overline{AOC} and radius \overline{BO} . Given $m\angle BAO = 73^\circ$. Find the measure of the central angle $\angle AOB$.

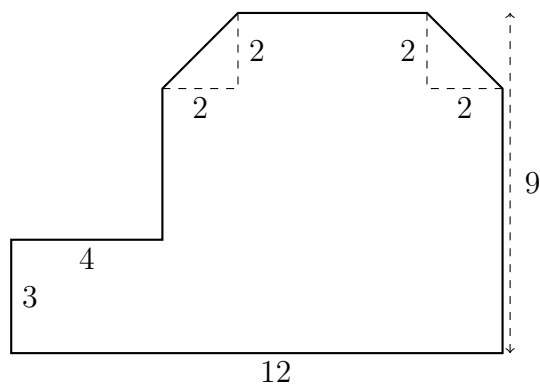


11. Given isosceles right $\triangle ABC$ with $\overline{AC} \cong \overline{BC}$ and $\overline{AC} \perp \overline{BC}$. Find $m\angle A$.



12. A sheet metal part is cut with square corners and two 45° cutouts as shown with lengths marked in centimeters.

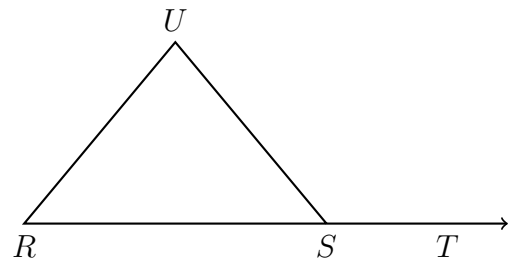
(a) Find the area of the figure. (the drawing is not to scale)



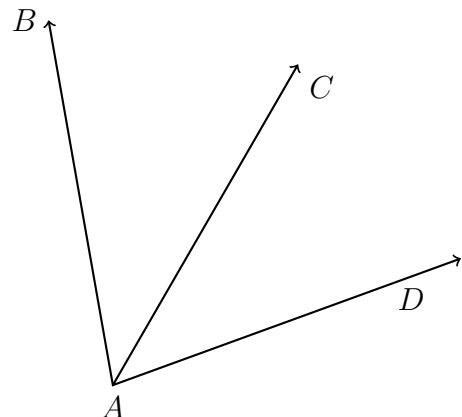
- (b) Spicy: The weight of the sheet metal is 1.5 grams per square centimeter. Find the weight of the part.

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

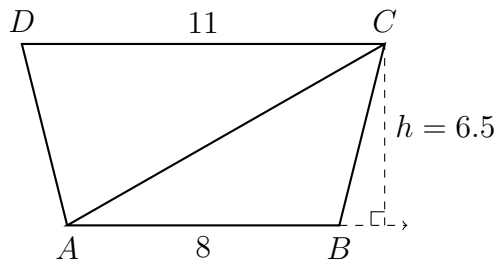
14. Given isosceles $\triangle RSU$ with $\overline{UR} \cong \overline{US}$. If $m\angle UST = x$ and $m\angle R = x - 80$, find $m\angle U$.



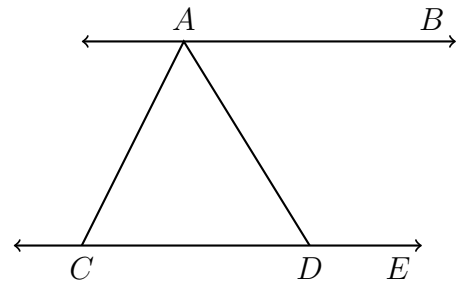
15. An angle bisector is shown below, with \overrightarrow{AC} bisecting $\angle BAD$. Given $m\angle BAC = 3x + 5$ and $m\angle BAD = 7x - 1$, find $m\angle BAD$. (Show check)



16. The trapezoid $ABCD$ has two parallel sides, $\overline{AB} \parallel \overline{CD}$ with lengths $AB = 8$ and $CD = 11$. The trapezoid's height is $h = 6.5$. Find the areas of $\triangle ABC$ and $\triangle CDA$. Add their areas to find the area of the whole trapezoid.



17. Given parallel lines $\overleftrightarrow{AB} \parallel \overleftrightarrow{CDE}$ with $\overline{AC} \cong \overline{CD}$. If $m\angle BAD = 80$ find $m\angle ACD$.



18. Two parallel lines intersect a second set of parallel lines. Given $m\angle 2 = 2.8x + 9$ and $m\angle 4 = 4.4x - 63$, find the measure of $\angle 1$.

