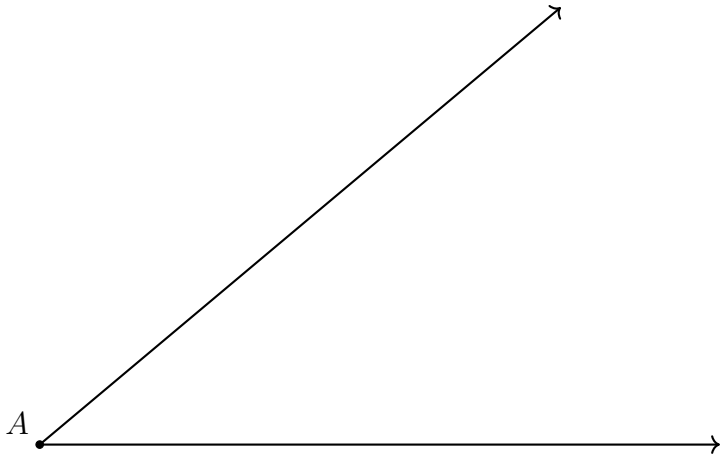
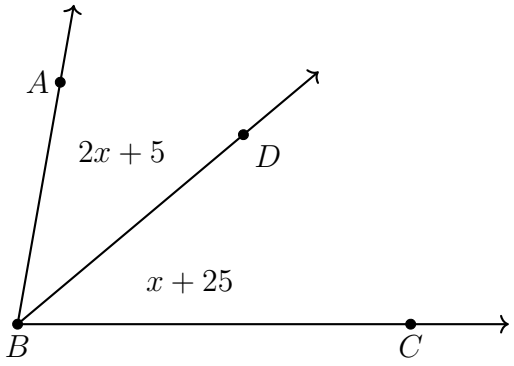
2.4 Classwork: Angle bisector

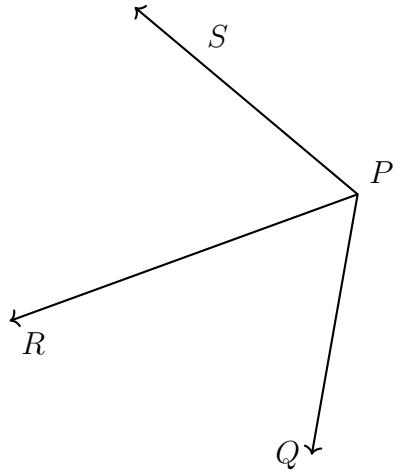
1. Given an angle with vertex A.
   (a) Using a protractor, measure angle A in degrees. $\text{m}\angle A =$
   (b) Draw a ray $\overrightarrow{AB}$ that exactly bisects $\angle A$.
   (c) What is the measure of each half angle?



2. What is the measure of a straight angle in degrees?
3. Given two congruent angles, with one having a measure of $28°$. What is the measure of the other angle?
4. Two perpendicular lines intersect at point P. What is the measure of angle P in degrees?
5. The ray $\overrightarrow{BD}$ bisects $\angle ABC$. $\text{m}\angle ABD = 2x + 5$, $\text{m}\angle DBC = x + 25$. Find $\text{m}\angle ABC$.



6. An angle bisector is shown below, with $\overrightarrow{PR}$ bisecting $\angle QPS$. Given $\text{m}\angle QPR = 3x - 12$ and $\text{m}\angle QPS = 5x + 4$, find $\text{m}\angle QPS$.

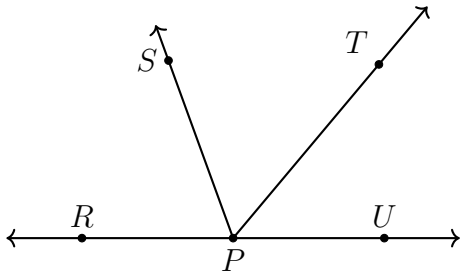


7. Given the situation in the diagram, answer each question. Circle True or False.

   (a) T or F: $\overrightarrow{PU}$ and $\overrightarrow{PT}$ are opposite rays.

   (b) T or F: $\angle RPT$ and $\angle SPU$ are adjacent angles.

   (c) T or F: $\angle TPU$ is an acute angle.

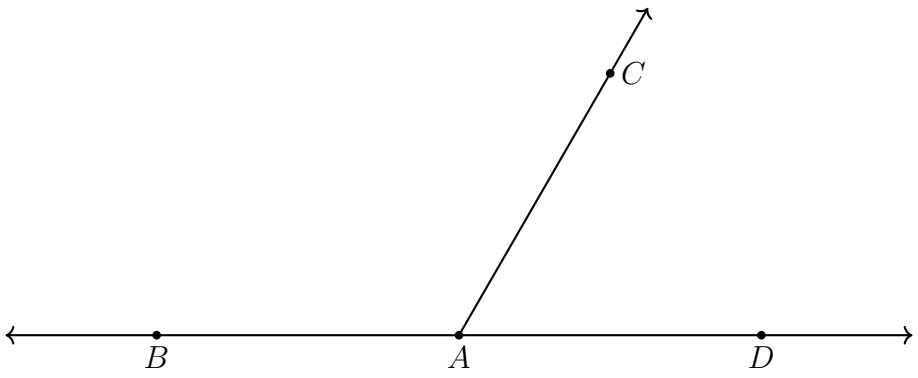


8. Given a straight line and a ray, making two angles.

   (a) Write down the names of the two angles using proper notation.

   (b) Using a protractor, measure the two angles in degrees.

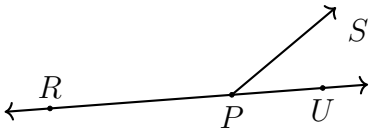
   (c) Do they sum to 180°?



9. **Do Not Solve**. Circle the appropriate equation. Cite a justification on the line.

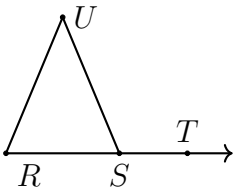
- "definition of bisector"
- "linear pairs sum to 180°"
- "vertical ∠s are ≅"
- "isosceles base angle theorem"
- "⊥ rays with complementary ∠s adding to 90°"

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



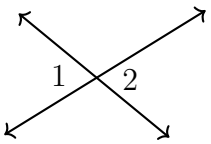
$\angle RPS \cong \angle SPU \quad m\angle RPS + m\angle SPU = 180°$ _____

(b) Given $\text{m}\angle R = m\angle U = 65$, and $\text{m}\angle UST = 130$. Find $\text{m}\angle RSU$.



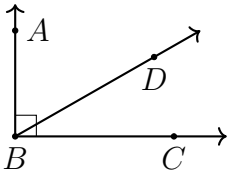
$\angle UST \cong \angle RSU \qquad \text{m}\angle UST + \text{m}\angle RSU = 180$ _____

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



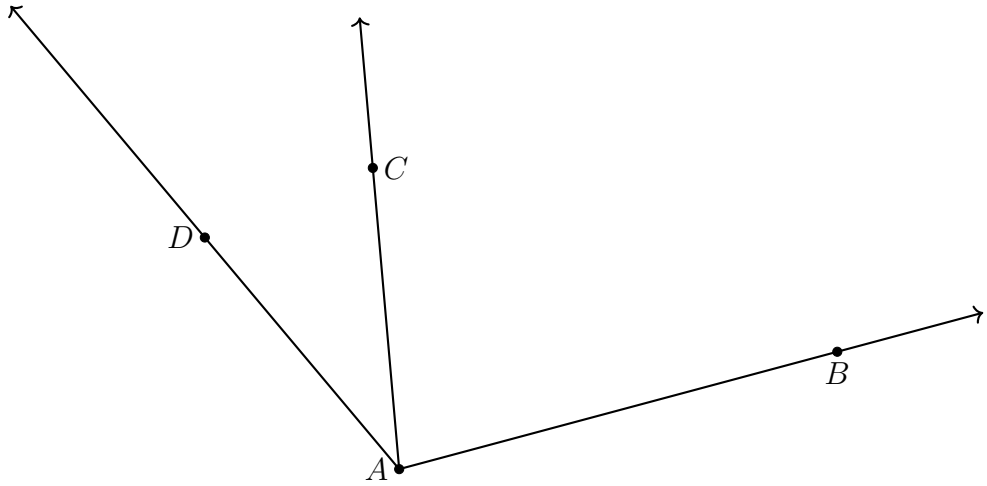
$\angle 1 \cong \angle 2 \qquad \text{m}\angle 1 + \text{m}\angle 2 = 180$ _____

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



$\angle ABD \cong \angle DBC \qquad \text{m}\angle ABD + \text{m}\angle DBC = 90$ _____

10. Write down the name of the *three* angles shown in the diagram below and their angle measures, using your protractor.



11. The $\triangle ABC$ is inscribed a semi-circle. Measure its angles and sides using a ruler and protractor.

(a) $AB =$

(b) $AC =$

(c) $BC =$

(d) $m\angle A =$

(e) $m\angle B =$

(f) $m\angle C =$