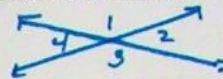


Vertical, Complementary, and Supplementary Angles

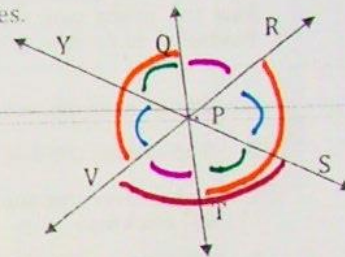
When two lines intersect, **two pairs of VERTICAL ANGLES** are formed. Vertical angles are not adjacent. Vertical angles are located across from each other, they share a common vertex, and the sides of the angles are composed of opposite rays.



Pairs of vertical angles always have the same measure. Vertical angles are congruent (symbol \cong). Congruent means they have the same measurement.

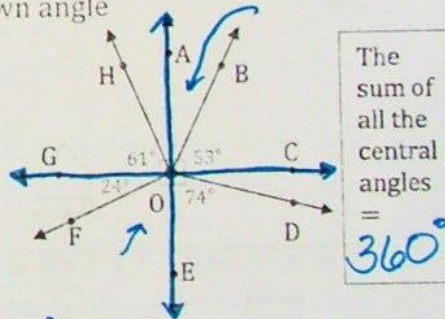
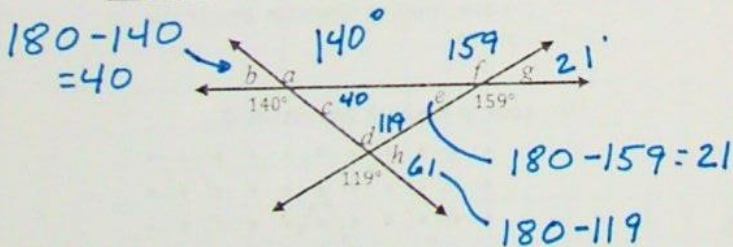
In the diagram, name the second angle in each pair of vertical angles.

- | | |
|--|--|
| 1) $\angle YPV$ <u>$\angle RPS$</u> | 4) $\angle VPT$ <u>$\angle QPR$</u> |
| 2) $\angle QPR$ <u>$\angle TPV$</u> | 5) $\angle RPT$ <u>$\angle QPV$</u> |
| 3) $\angle SPT$ <u>$\angle YPQ$</u> | 6) $\angle VPS$ <u>$\angle YPR$</u> |



Two angles are complementary if the sum of their angles measure 90° *right*
 Two angles are supplementary if the sum of their angles measure 180° *straight*
 Complementary and supplementary angle pairs *may be adjacent, but do not need to be.*

PRACTICE: Calculate the measure of each unknown angle

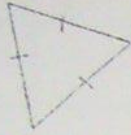


SET A	The sum of angles $e + d + c = 21 + 119 + 40 = 180$	
1) $m\angle a =$	<u>140°</u>	5) $m\angle e =$ <u>21</u>
2) $m\angle b =$	<u>40°</u>	6) $m\angle f =$ <u>159°</u>
3) $m\angle c =$	<u>40°</u>	7) $m\angle g =$ <u>21°</u>
4) $m\angle d =$	<u>119°</u>	8) $m\angle h =$ <u>61°</u>

SET B	
9) $m\angle AOB =$	<u>$90 - 53 = 37^\circ$</u>
10) $m\angle COD =$	<u>$90 - 74 = 16^\circ$</u>
11) $m\angle EOF =$	<u>$90 - 24 = 66^\circ$</u>
12) $m\angle AOH =$	<u>$90 - 61 = 29^\circ$</u>

Review: Lines and Angles

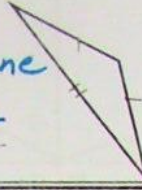
Notes: Identify each type of triangle by its angles and by its sides



By sides: Equilateral
By angles: acute



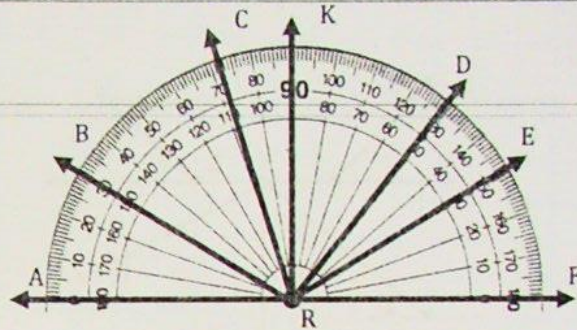
By sides: Scalene
By angles: right



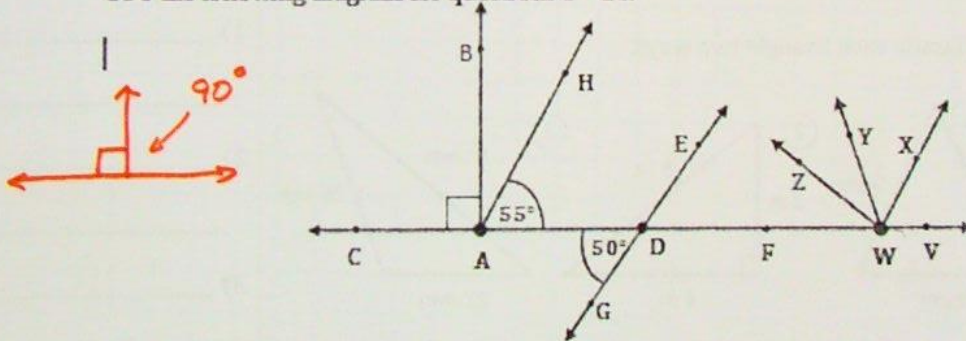
By sides: Isosceles
By angles: obtuse

Part 1: Find the measure of the angles below.

- 1) What is the measure of $\angle DRA$? _____
- 2) What is the measure of $\angle CRF$? _____
- 3) What is the measure of $\angle ARB$? _____
- 4) What is the measure of $\angle CRB$? _____
- 5) What is the measure of $\angle KRC$? _____



Use the following diagram for questions 6 - 14.



- 6) Which angle is supplementary angle to $\angle EDF$? _____
- 7) What is the measure of $\angle GDF$? _____
- 8) Which two angles are right angles? _____ and _____
- 9) What is the measure of $\angle EDF$? _____
- 10) Which angle is adjacent to $\angle BAD$? _____ and _____
- 11) Which angle is a complementary angle to $\angle HAD$? _____
- 12) What is the measure of $\angle HAB$? _____
- 13) What is the measure of $\angle CAD$? _____
- 14) Which angles are adjacent to $\angle EDA$? _____