

UNIT 8: 2-D GEOMETRY

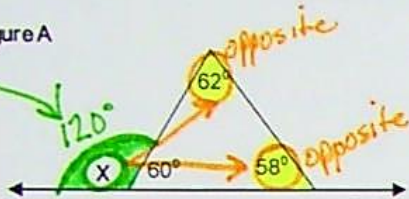
~ Unit 8, Page 16 ~

Exterior Angles are OUTSIDE the Δ and supplement adjacent interior \angle 's

The exterior angle of a triangle is always equal to the sum of the opposite interior angles. (the yellow highlighted angles below in Figure A)

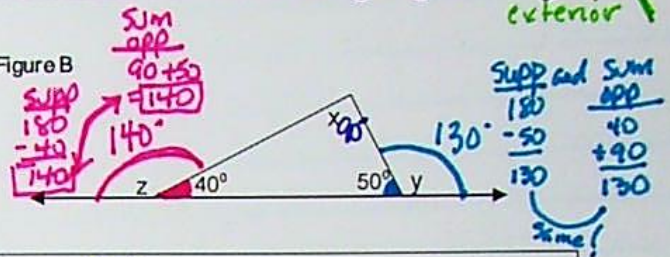
Example 1: Examine the figures below. Find the measure of the missing angle.

Figure A



- Sum \angle 's in triangle = 180° ($60+62+58$)
- $x = 120^\circ$
- Sum of interior angles opposite of angle "x" = $62 + 58 = 120^\circ$
opposite + opposite = exterior angle!

Figure B



- $x = 90^\circ$
- $\angle y = 130^\circ$ $\angle z = 140^\circ$ ($90+50$)
- Sum of interior angles opposite of angle "y" = 130°
Sum of interior angles opposite of angle "z" = 140° ($90+50$)

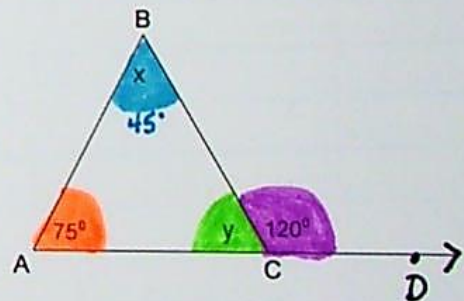
Example 2: Find the measure of $\angle x$ and $\angle y$.

Step 1: Use the rule for exterior angles to write equation.

$$120^\circ = \angle A + \angle B$$

$$120^\circ = 75^\circ + x$$

$$45^\circ = x$$



Step 2: The sum of the interior angles of a triangle equals 180° , and $\angle BCA$ supplements $\angle BCD$, so either equation:

SUM of INTERIOR ANGLES

$$180^\circ = 75^\circ + 45^\circ + y$$

$$180^\circ = 75^\circ + 45^\circ + y$$

$$180^\circ = 120^\circ + y$$

$$60^\circ = y$$

SUPPLEMENTAL ANGLES

$$180^\circ = 120^\circ + \angle y$$

$$60^\circ = y$$

Both methods lead to the SAME answer!

