

4-2 Angles Measures of Triangles

Objective: Find angle measures in triangles

Classifying triangles by sides

Equilateral

3 sides =



Isosceles

2 sides =



Scalene

no sides =



Classifying triangles by angles

Equiangular

all \angle 's



Acute *less than 90*

3 acute \angle 's

Right 90°

1 right \angle

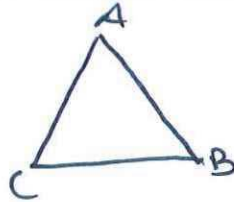


Obtuse *more than 90*

1 obtuse \angle

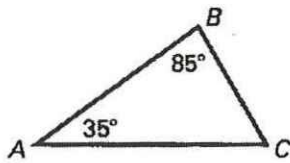
Triangle Angle-Sum Theorem: the 3 angles of a $\Delta = 180^\circ$

$$\angle A + \angle B + \angle C = 180$$



Examples:

1. Find $\angle C$



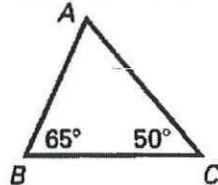
$$35 + 85 + C = 180$$



$$120 + C = 180$$

$$\boxed{C = 60^\circ}$$

2. Find $\angle A$

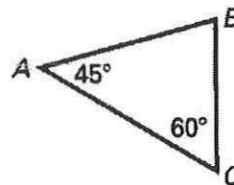


$$A + 65 + 50 = 180$$

$$A + 115 = 80$$

$$\boxed{A = 65^\circ}$$

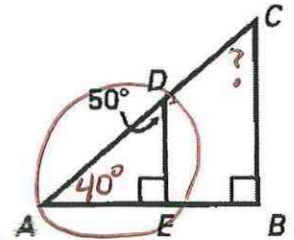
3. Find $\angle B$



$$45 + 60 + B = 180$$

$$\boxed{B = 75^\circ}$$

4. Find $\angle C$



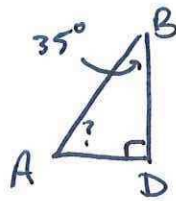
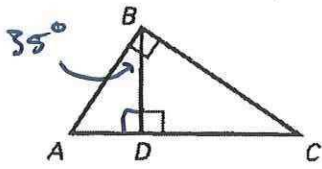
$$A + 50 + 90 = 180$$

$$A = 40^\circ$$

$$40 + 90 + C = 180$$

$$\boxed{C = 50^\circ}$$

5. $m\angle ABD = 35^\circ$. Find $m\angle DAB$



$$? + 35 + 90 = 180$$

$$? + 125 = 180$$

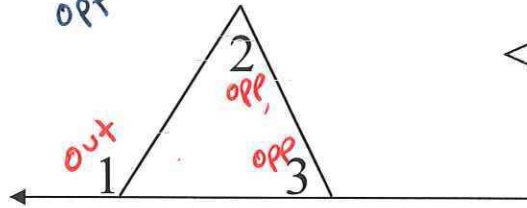
$$\angle DAB = 55^\circ$$

outside
↓

Exterior Angle Th: an exterior angle of a triangle is equal to the sum of the two remote interiors.

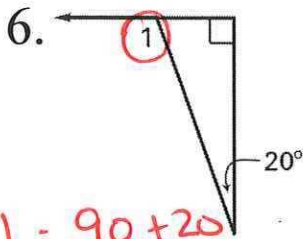
$$\angle 1 = \angle 2 + \angle 3$$

opp side
↙



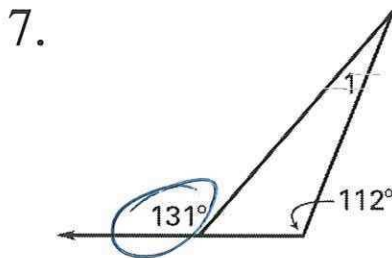
$\angle 2$ & $\angle 3$ are remote interiors to $\angle 1$

Find $\angle 1$



$$\angle 1 = 90 + 20$$

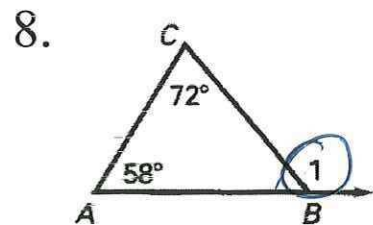
$$\angle 1 = 110^\circ$$



||

$$\begin{array}{r} 131 = \angle 1 + 112 \\ -112 \quad -112 \\ \hline \end{array}$$

$$\angle 1 = 19^\circ$$



$$\angle 1 = 72 + 58$$

$$\angle 1 = 130^\circ$$

P170 #11-22
P182 #6-21