

Name: _____

Grade: _____

Score: _____

Worksheet #5

**MISSING ANGLE IN A TRIANGLE**

Learning goal: Students will be able to find missing angles and to Use the Exterior Angle Property to solve problems.

PROBLEM STATEMENT	SOLUTION STEPS	ANSWER
In $\triangle ABC$, $\angle A = 50^\circ$ and the exterior angle at B is 120° . Find $\angle B$ and $\angle C$.		
In $\triangle PQR$, $\angle P = 30^\circ$ and the exterior angle at Q is 110° . Find $\angle Q$ and $\angle R$.		
In $\triangle XYZ$, exterior angle at X is 140° and $\angle Y = 50^\circ$. Find $\angle X$ and $\angle Z$.		
In $\triangle ABC$, $\angle B = 2\angle A$ and the exterior angle at C is 135° . Find all angles.		
In $\triangle DEF$, exterior angles at D and E are 130° and 110° respectively. Find all angles.		
In $\triangle MNO$, $\angle M = 35^\circ$ and the exterior angle at N is 125° . Find $\angle N$ and $\angle O$.		
In $\triangle UVW$, the exterior angle at U is 115° and $\angle V = 40^\circ$. Find $\angle U$ and $\angle W$.		
In $\triangle GHI$, $\angle G = 25^\circ$ and the exterior angle at H is 140° . Find $\angle H$ and $\angle I$.		
In $\triangle JKL$, $\angle J = 60^\circ$ and the exterior angle at K is 150° . Find $\angle K$ and $\angle L$.		
In $\triangle PQR$, the exterior angles at P and Q are 145° and 120° respectively. Find all interior angles.		

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In $\triangle ABC$, $\angle A = 50^\circ$ and the exterior angle at B is 120° . Find $\angle B$ and $\angle C$.	Exterior $\angle$ at B = 120° Interior $\angle B = 180^\circ - 120^\circ = 60^\circ$ Angle sum: $50^\circ + 60^\circ + \angle C = 180^\circ$ $\angle C = 70^\circ$	$\angle B = 60^\circ$ $\angle C = 70^\circ$
In $\triangle PQR$, $\angle P = 30^\circ$ and the exterior angle at Q is 110° . Find $\angle Q$ and $\angle R$.	Exterior $\angle$ at Q = 110° Interior $\angle Q = 180^\circ - 110^\circ = 70^\circ$ Angle sum: $30^\circ + 70^\circ + \angle R = 180^\circ$ $\angle R = 80^\circ$	$\angle Q = 70^\circ$ $\angle R = 80^\circ$
In $\triangle XYZ$, exterior angle at X is 140° and $\angle Y = 50^\circ$. Find $\angle X$ and $\angle Z$.	Exterior $\angle$ at X = 140° Interior $\angle X = 180^\circ - 140^\circ = 40^\circ$ Angle sum: $40^\circ + 50^\circ + \angle Z = 180^\circ$ $\angle Z = 90^\circ$	$\angle X = 40^\circ$ $\angle Z = 90^\circ$
In $\triangle ABC$, $\angle B = 2\angle A$ and the exterior angle at C is 135° . Find all angles.	Exterior $\angle$ at C = 135° Interior $\angle C = 180^\circ - 135^\circ = 45^\circ$ Let $\angle A = x \Rightarrow \angle B = 2x$ $3x + 2x + 45^\circ = 180^\circ$ $x = 45^\circ$	$\angle A = 45^\circ$ $\angle B = 90^\circ$ $\angle C = 45^\circ$
In $\triangle DEF$, exterior angles at D and E are 130° and 110° respectively. Find all angles.	Exterior $\angle$ at D = 130° Interior $\angle D = 50^\circ$ Exterior $\angle$ at E = 110° Interior $\angle E = 70^\circ$ Angle sum: $50^\circ + 70^\circ + \angle F = 180^\circ$ $\angle F = 60^\circ$	$\angle D = 50^\circ$ $\angle E = 70^\circ$ $\angle F = 60^\circ$

In $\triangle MNO$, $\angle M = 35^\circ$ and the exterior angle at N is 125° . Find $\angle N$ and $\angle O$.	Exterior $\angle$ at N = 125° Interior $\angle N = 180^\circ - 125^\circ = 55^\circ$ Angle sum: $35^\circ + 55^\circ + \angle O = 180^\circ$ $\angle O = 90^\circ$	$\angle N = 55^\circ$ $\angle O = 90^\circ$
In $\triangle UVW$, the exterior angle at U is 115° and $\angle V = 40^\circ$. Find $\angle U$ and $\angle W$.	Exterior $\angle$ at U = 115° Interior $\angle U = 180^\circ - 115^\circ = 65^\circ$ Angle sum: $65^\circ + 40^\circ + \angle W = 180^\circ$ $\angle W = 75^\circ$	$\angle U = 65^\circ$ $\angle W = 75^\circ$
In $\triangle GHI$, $\angle G = 25^\circ$ and the exterior angle at H is 140° . Find $\angle H$ and $\angle I$.	Exterior $\angle$ at H = 140° Interior $\angle H = 180^\circ - 140^\circ = 40^\circ$ Angle sum: $25^\circ + 40^\circ + \angle I = 180^\circ$ $\angle I = 115^\circ$	$\angle H = 40^\circ$ $\angle I = 115^\circ$
In $\triangle JKL$, $\angle J = 60^\circ$ and the exterior angle at K is 150° . Find $\angle K$ and $\angle L$.	Exterior $\angle$ at K = 150° Interior $\angle K = 180^\circ - 150^\circ = 30^\circ$ Angle sum: $60^\circ + 30^\circ + \angle L = 180^\circ$ $\angle L = 90^\circ$	$\angle K = 30^\circ$ $\angle L = 90^\circ$
In $\triangle PQR$, the exterior angles at P and Q are 145° and 120° respectively. Find all interior angles.	Exterior $\angle$ at P = 145° Interior $\angle P = 180^\circ - 145^\circ = 35^\circ$ Exterior $\angle$ at Q = 120° Interior $\angle Q = 180^\circ - 120^\circ = 60^\circ$ Angle sum: $35^\circ + 60^\circ + \angle R = 180^\circ$ $\angle R = 85^\circ$	$\angle P = 35^\circ$ $\angle Q = 60^\circ$ $\angle R = 85^\circ$