

Find All Angles

Use vertical, corresponding, supplementary and right-angle facts to find every missing angle.

1. Angle 1 is given. Find angles 2, 3, 4, 5, 6, 7, 8.
Given: $A1 = 129 \text{ deg}$

A2 _____ A3 _____ A4 _____ A5 _____
A6 _____ A7 _____ A8 _____

2. Angle 4 is given. Find angles 1, 2, 3, 5, 6, 7, 8.
Given: $A4 = 56 \text{ deg}$

A1 _____ A2 _____ A3 _____ A5 _____
A6 _____ A7 _____ A8 _____

3. Angle 5 is given. Find angles 1, 2, 3, 4, 6, 7, 8.
Given: $A5 = 31 \text{ deg}$

A1 _____ A2 _____ A3 _____ A4 _____
A6 _____ A7 _____ A8 _____

4. Angle 1 is given. Find angles 2, 3, 4, 5, 6, 7, 8.
Given: $A1 = 69 \text{ deg}$

A2 _____ A3 _____ A4 _____ A5 _____
A6 _____ A7 _____ A8 _____

5. Angle 4 is given. Find angles 1, 2, 3, 5, 6, 7, 8.
Given: $A4 = 146 \text{ deg}$

A1 _____ A2 _____ A3 _____ A5 _____
A6 _____ A7 _____ A8 _____

6. Angle 7 is given. Find angles 1, 2, 3, 4, 5, 6, 8.
Given: $A7 = 113 \text{ deg}$

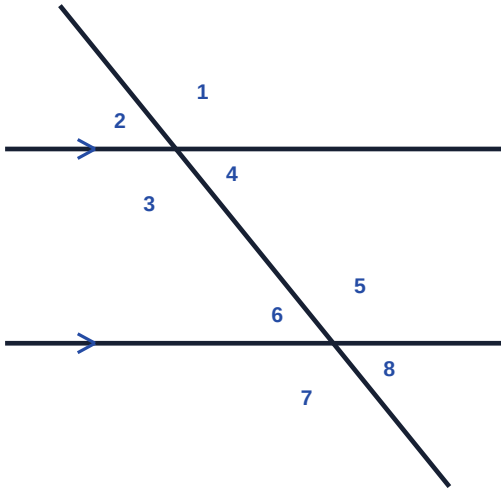
A1 _____ A2 _____ A3 _____ A4 _____
A5 _____ A6 _____ A8 _____

Find All Angles

Worked Answer Key

Use vertical, corresponding, supplementary, complementary and right-angle facts to find every missing angle.

1. Angle 1 is given. Find angles 2, 3, 4, 5, 6, 7, 8.
Given: $A_1 = 129^\circ$



Angle 3 = angle 1 = 129° because vertical angles are equal.

Angle 5 = angle 1 = 129° because corresponding angles on parallel lines are equal.

Angle 7 = angle 3 = 129° because corresponding angles on parallel lines are equal.

Angle 2 = 180° - angle 1 = 180° - 129° = 51° because adjacent angles on a straight line are supplementary.

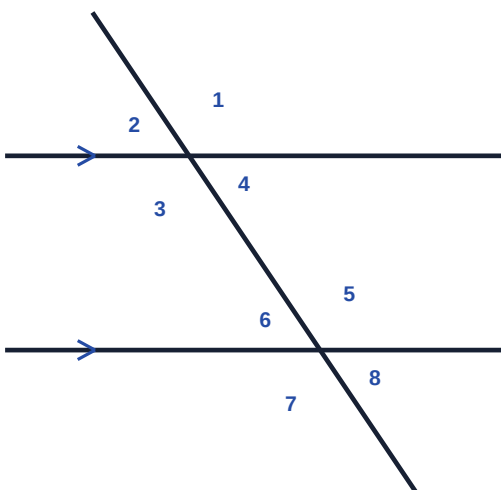
Angle 4 = 180° - angle 3 = 180° - 129° = 51° because adjacent angles on a straight line are supplementary.

Angle 6 = 180° - angle 5 = 180° - 129° = 51° because adjacent angles on a straight line are supplementary.

Angle 8 = 180° - angle 7 = 180° - 129° = 51° because adjacent angles on a straight line are supplementary.

Answers: $A_2 = 51^\circ$; $A_3 = 129^\circ$; $A_4 = 51^\circ$; $A_5 = 129^\circ$; $A_6 = 51^\circ$; $A_7 = 129^\circ$; $A_8 = 51^\circ$

2. Angle 4 is given. Find angles 1, 2, 3, 5, 6, 7, 8.
Given: $A_4 = 56^\circ$



Angle 2 = angle 4 = 56° because vertical angles are equal.

Angle 6 = angle 2 = 56° because corresponding angles on parallel lines are equal.

Angle 8 = angle 4 = 56° because corresponding angles on parallel lines are equal.

Angle 1 = 180° - angle 2 = 180° - 56° = 124° because adjacent angles on a straight line are supplementary.

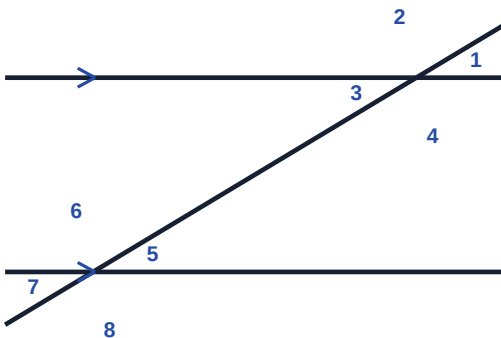
Angle 3 = 180° - angle 2 = 180° - 56° = 124° because adjacent angles on a straight line are supplementary.

Angle 5 = 180° - angle 6 = 180° - 56° = 124° because adjacent angles on a straight line are supplementary.

Angle 7 = 180° - angle 6 = 180° - 56° = 124° because adjacent angles on a straight line are supplementary.

Answers: $A_1 = 124^\circ$; $A_2 = 56^\circ$; $A_3 = 124^\circ$; $A_5 = 124^\circ$; $A_6 = 56^\circ$; $A_7 = 124^\circ$; $A_8 = 56^\circ$

3. Angle 5 is given. Find angles 1, 2, 3, 4, 6, 7, 8.
Given: $A_5 = 31^\circ$



Angle 7 = angle 5 = 31° because vertical angles are equal.

Angle 1 = angle 5 = 31° because corresponding angles on parallel lines are equal.

Angle 3 = angle 7 = 31° because corresponding angles on parallel lines are equal.

Angle 2 = 180° - angle 1 = 180° - 31° = 149° because adjacent angles on a straight line are supplementary.

Angle 4 = 180° - angle 3 = 180° - 31° = 149° because adjacent angles on a straight line are supplementary.

Angle 6 = 180° - angle 5 = 180° - 31° = 149° because adjacent angles on a straight line are supplementary.

Angle 8 = 180° - angle 7 = 180° - 31° = 149° because adjacent angles on a straight line are supplementary.

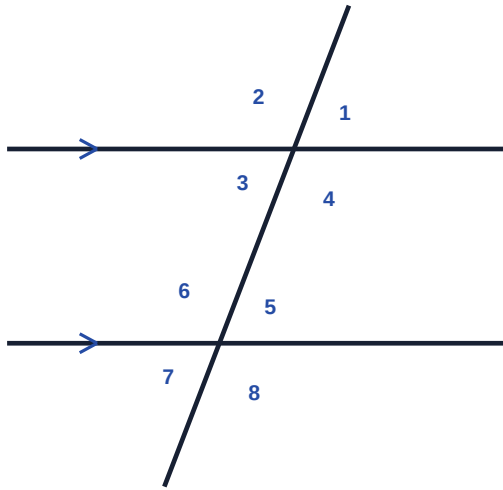
Answers: $A_1 = 31^\circ$; $A_2 = 149^\circ$; $A_3 = 31^\circ$; $A_4 = 149^\circ$; $A_6 = 149^\circ$; $A_7 = 31^\circ$; $A_8 = 149^\circ$

Find All Angles

Worked Answer Key

Use vertical, corresponding, supplementary, complementary and right-angle facts to find every missing angle.

4. Angle 1 is given. Find angles 2, 3, 4, 5, 6, 7, 8.
Given: $A1 = 69 \text{ deg}$



Angle 3 = angle 1 = 69 deg because vertical angles are equal.

Angle 5 = angle 1 = 69 deg because corresponding angles on parallel lines are equal.

Angle 7 = angle 3 = 69 deg because corresponding angles on parallel lines are equal.

Angle 2 = $180 \text{ deg} - \text{angle } 1 = 180 \text{ deg} - 69 \text{ deg} = 111 \text{ deg}$ because adjacent angles on a straight line are supplementary.

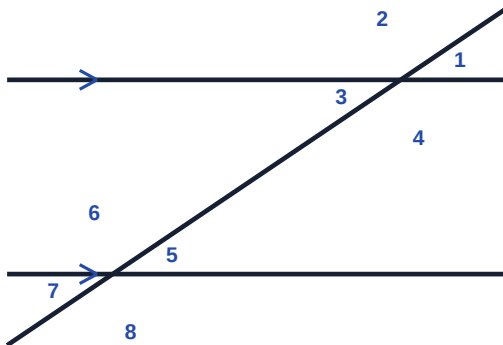
Angle 4 = $180 \text{ deg} - \text{angle } 3 = 180 \text{ deg} - 69 \text{ deg} = 111 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 6 = $180 \text{ deg} - \text{angle } 5 = 180 \text{ deg} - 69 \text{ deg} = 111 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 8 = $180 \text{ deg} - \text{angle } 7 = 180 \text{ deg} - 69 \text{ deg} = 111 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Answers: $A2 = 111 \text{ deg}$; $A3 = 69 \text{ deg}$; $A4 = 111 \text{ deg}$; $A5 = 69 \text{ deg}$; $A6 = 111 \text{ deg}$; $A7 = 69 \text{ deg}$; $A8 = 111 \text{ deg}$

5. Angle 4 is given. Find angles 1, 2, 3, 5, 6, 7, 8.
Given: $A4 = 146 \text{ deg}$



Angle 2 = angle 4 = 146 deg because vertical angles are equal.

Angle 6 = angle 2 = 146 deg because corresponding angles on parallel lines are equal.

Angle 8 = angle 4 = 146 deg because corresponding angles on parallel lines are equal.

Angle 1 = $180 \text{ deg} - \text{angle } 2 = 180 \text{ deg} - 146 \text{ deg} = 34 \text{ deg}$ because adjacent angles on a straight line are supplementary.

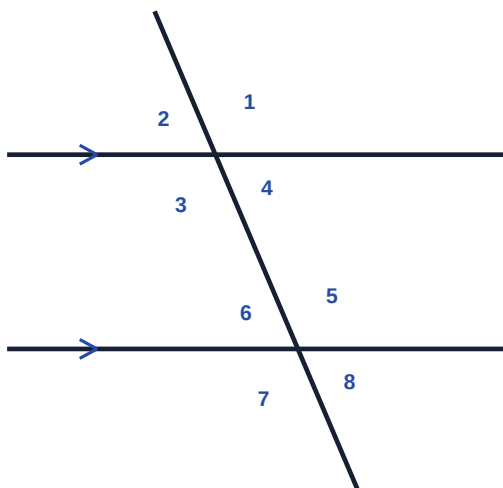
Angle 3 = $180 \text{ deg} - \text{angle } 2 = 180 \text{ deg} - 146 \text{ deg} = 34 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 5 = $180 \text{ deg} - \text{angle } 6 = 180 \text{ deg} - 146 \text{ deg} = 34 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 7 = $180 \text{ deg} - \text{angle } 6 = 180 \text{ deg} - 146 \text{ deg} = 34 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Answers: $A1 = 34 \text{ deg}$; $A2 = 146 \text{ deg}$; $A3 = 34 \text{ deg}$; $A5 = 34 \text{ deg}$; $A6 = 146 \text{ deg}$; $A7 = 34 \text{ deg}$; $A8 = 146 \text{ deg}$

6. Angle 7 is given. Find angles 1, 2, 3, 4, 5, 6, 8.
Given: $A7 = 113 \text{ deg}$



Angle 5 = angle 7 = 113 deg because vertical angles are equal.

Angle 1 = angle 5 = 113 deg because corresponding angles on parallel lines are equal.

Angle 3 = angle 7 = 113 deg because corresponding angles on parallel lines are equal.

Angle 2 = $180 \text{ deg} - \text{angle } 1 = 180 \text{ deg} - 113 \text{ deg} = 67 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 4 = $180 \text{ deg} - \text{angle } 3 = 180 \text{ deg} - 113 \text{ deg} = 67 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 6 = $180 \text{ deg} - \text{angle } 5 = 180 \text{ deg} - 113 \text{ deg} = 67 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Angle 8 = $180 \text{ deg} - \text{angle } 7 = 180 \text{ deg} - 113 \text{ deg} = 67 \text{ deg}$ because adjacent angles on a straight line are supplementary.

Answers: $A1 = 113 \text{ deg}$; $A2 = 67 \text{ deg}$; $A3 = 113 \text{ deg}$; $A4 = 67 \text{ deg}$; $A5 = 113 \text{ deg}$; $A6 = 67 \text{ deg}$; $A8 = 67 \text{ deg}$