

Grade 7 - Angle Relationships and Equations - Test Answer Key

Common Core 7.G.B.5 · maths-pdf.fr/en/

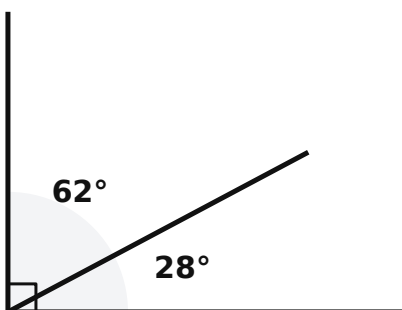
Use this answer key and scoring guide to grade the angle relationships test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

Grade 7 · Common Core State Standards: **7.G.B.5**

Question 1 - Complementary [2 pts]

The angles are complementary: $28 + x = 90$, so $x = 62$.

$x = 62$; complementary



$$28^\circ + 62^\circ = 90^\circ.$$

Scoring: 1 point for the relationship; 1 point for x .

Question 2 - Supplementary [2 pts]

$x + 133 = 180$, so $x = 47$.

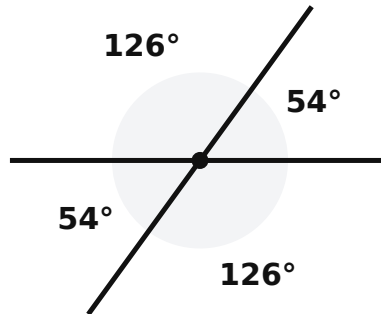
$x = 47$; a linear pair

Scoring: 1 point for the equation; 1 point for x with the name.

Question 3 - Crossing lines [2 pts]

a is adjacent to 54° : $180 - 54 = 126^\circ$. b is vertical to the 54° angle: 54° . c is vertical to a: 126° .

a = 126° , b = 54° , c = 126°



All four angles.

Scoring: 1 point for two correct angles; 1 point for the third and the explanation.

Question 4 - Complementary expressions [2 pts]

$5x + 30 = 90$, so $x = 12$.

$3(12) + 6 = 42$ and $2(12) + 24 = 48$.

x = 12; 42° and 48°

Scoring: 1 point for x; 1 point for both angles.

Question 5 - Vertical angles equation [2 pts]

$5x - 8 = 52$, $5x = 60$, $x = 12$.

x = 12

Scoring: 1 point for the equation; 1 point for x.

Question 6 - Around a point [2 pts]

$110+95+60+x=360$, so $265+x=360$ and $x=95$.

95°

Scoring: 1 point for the equation (sum 360); 1 point for x .

Question 7 - Ratio [2 pts]

$4k+5k=180$, $9k=180$, $k=20$.

Angles: 80° and 100° .

80° and 100°

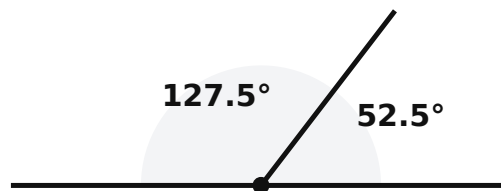
Scoring: 1 point for the equation; 1 point for both angles.

Question 8 - Linear pair equation [3 pts]

a. $x+10+3x=180$.

b. $4x+10=180$, $4x=170$, $x=42.5$.

c. $42.5+10=52.5^\circ$ and $3(42.5)=127.5^\circ$.



The two angles.

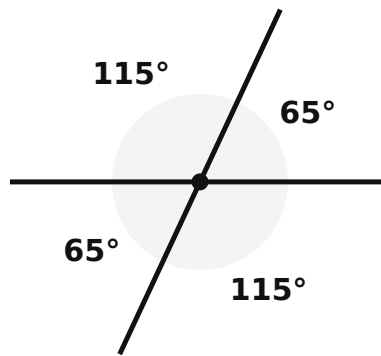
Scoring: 1 point for each part.

Question 9 - Crossing roads [3 pts]

a. The other angles are 115, 65, and 115 degrees.

b. The two 65-degree angles are vertical angles, and the two 115-degree angles are vertical angles.

c. They are adjacent and form a straight line, so they add up to 180 degrees.



All four angles.

Scoring: 1 point for each part.

Total
20 points