

Geometry · Points, Lines, Planes, Segments and Angles · Test Answer Key

Common Core G-CO.A.1 · mathovore.fr

Each answer shows a complete solution and a scoring guide. Award points for the correct equation and reasoning, not only for the final number. Accept equivalent definitions and notation that names the endpoint first.

GeometryCommon Core: G-CO.A.1

Question 1: Undefined terms and definitions (2 points)

- a. **Point, line and plane.**
- b. **A ray is a part of a line that consists of one endpoint and all the points of the line extending in one direction from it.**

Scoring: 1 point for all three terms; 1 point for a definition that includes one endpoint and extension in one direction only.

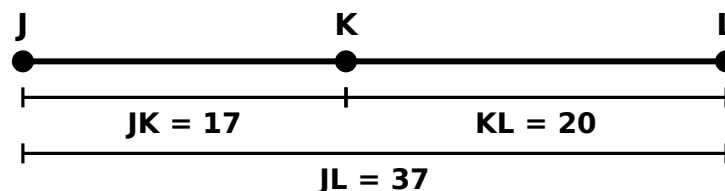
Question 2: Naming rays and points (2 points)

- a. **Ray BC** (endpoint first).
- b. Ray BA and ray BC share endpoint B and form line AC: **ray BA and ray BC.**

Scoring: 1 point for each part. Award the first point only if the endpoint is named first.

Question 3: Segment addition (3 points)

- a. $(2x+3)+(3x-1)=37$, so $5x+2=37$ and $5x=35$. **$x = 7$.**
- b. $KL=3(7)-1=20$. **$KL = 20$.**



$JK = 17$ and $KL = 20$, and $17 + 20 = 37$.

Scoring: 1 point for the correct equation, 1 point for $x = 7$, 1 point for $KL = 20$.

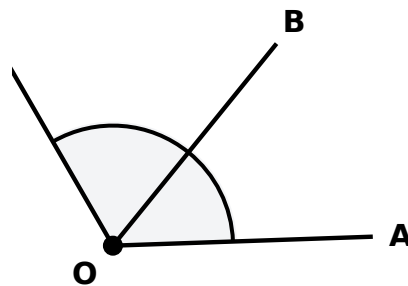
Question 4: Midpoint (2 points)

- a. $5x-4=3x+8$, so $2x=12$ and $x = 6$.
- b. $RN=5(6)-4=26$ and $NS=3(6)+8=26$, so $RS=26+26=52$. **RS = 52.**

Scoring: 1 point for each part.

Question 5: Angle addition (3 points)

- a. $(3x+7)+(5x-1)=118$, so $8x+6=118$ and $8x=112$. **$x = 14$.**
- b. $m\angle BOC=5(14)-1=69^\circ$. **69° .**



$$49^\circ + 69^\circ = 118^\circ.$$

Scoring: 1 point for applying the Angle Addition Postulate, 1 point for $x = 14$, 1 point for 69° .

Question 6: Complement problem (2 points)

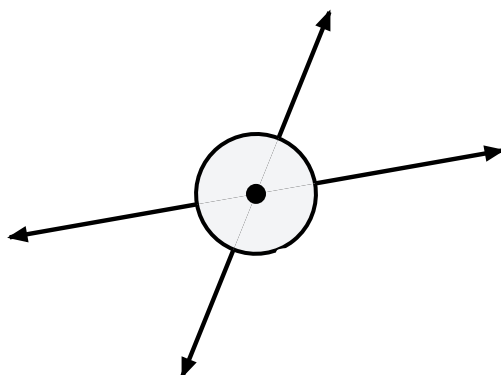
Let the complement be y° . The angle is $4y^\circ$ and they add to 90° : $y+4y=90$, so $5y=90$ and $y=18$.

Complement 18° ; angle 72° . Check: $4\times 18=72$ and $72+18=90$.

Scoring: 1 point for a correct equation, 1 point for both measures.

Question 7: Vertical angles and linear pairs (3 points)

- a. Vertical angles are congruent: $6x-8=4x+14$, so $2x=22$ and **$x = 11$.**
- b. $m\angle 1=6(11)-8=58^\circ$. **58° .**
- c. Angles 1 and 2 are a linear pair, so they are supplementary: $m\angle 2=180-58=122^\circ$. **122° .**



The angles measure 58° , 122° , 58° and 122° .

Scoring: 1 point for each part; part (c) needs the measure and the linear pair reason.

Question 8: Angle bisector (3 points)

- A bisector makes equal angles: $4x - 6 = 2x + 14$, so $2x = 20$ and $x = 10$.
- Each part is $4(10) - 6 = 34^\circ$, so $m\angle ABC = 34 + 34 = 68^\circ$. **68°** .
- $68^\circ < 90^\circ$ (less than a right angle), so the angle is **acute**.

Scoring: 1 point for each part.

Total
20 points