

Geometry · Parallel Lines, Transversals and Proofs · Test

Common Core G-CO.C.9 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

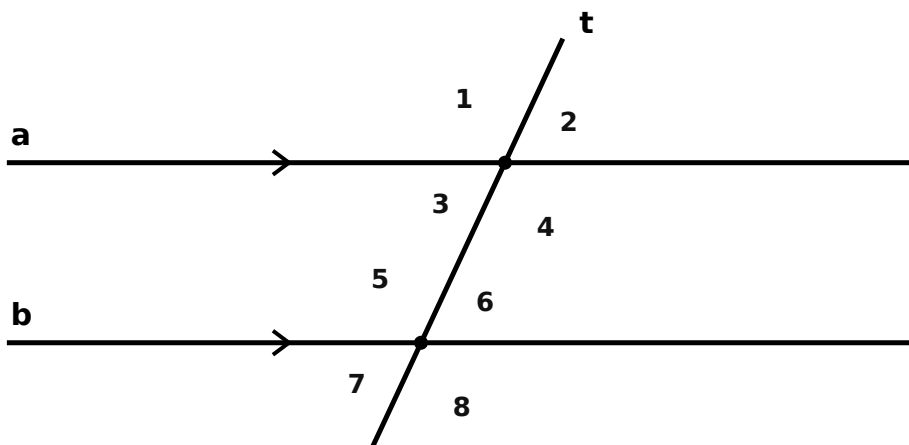
This 45-minute test has 9 questions worth 20 points. It covers angle pairs, finding missing measures, solving for x , deciding whether lines are parallel, and two-column proofs. Show every step.

Test information

- **Grade:** Geometry
- **Chapter:** Parallel Lines, Transversals and Proofs
- **Common Core:** G-CO.C.9
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 2 pts; Question 6: 3 pts; Question 7: 3 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Name the angle pairs (2 points)

Lines a and b are cut by transversal t . Name each pair of angles.



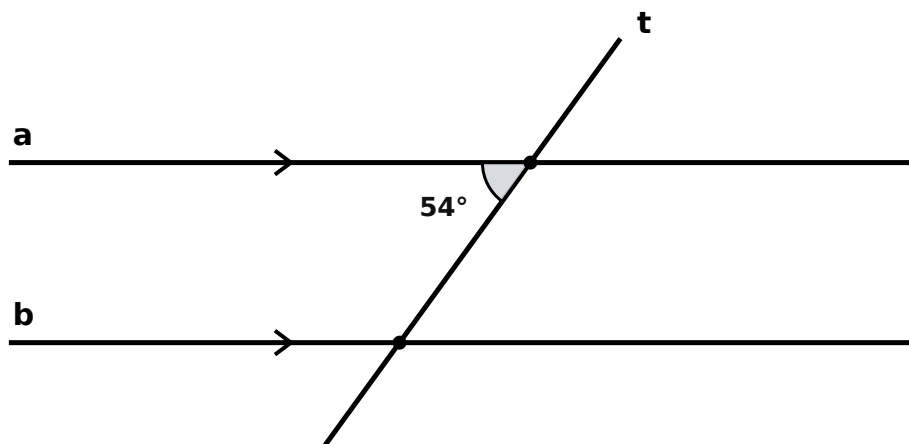
Use the numbered angles.

a. $\angle 4$ and $\angle 6$ (1 point)

b. $\angle 1$ and $\angle 8$ (1 point)

Question 2: Find missing angles (2 points)

Lines a and b are parallel and $m\angle 3 = 54^\circ$.



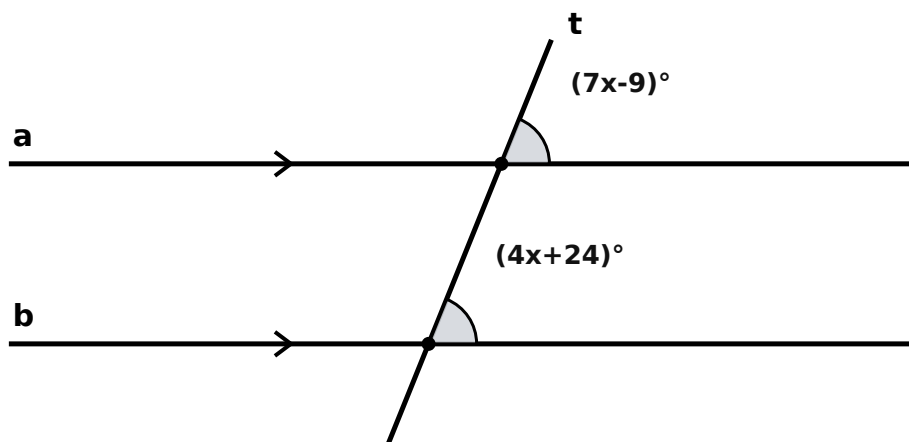
Angle 3 is given.

a. Find $m\angle 6$. (1 point)

b. Find $m\angle 5$ and $m\angle 8$. (1 point)

Question 3: Corresponding angles and x (2 points)

Lines a and b are parallel. Find x and the measure of each marked angle.



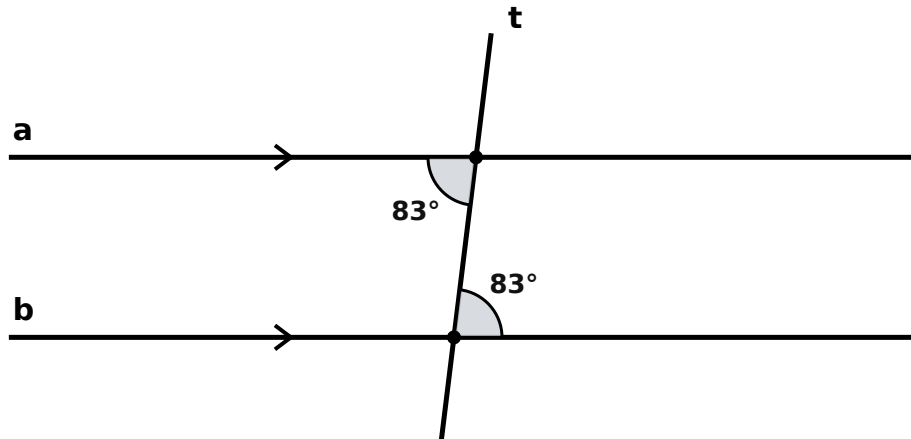
Angles 2 and 6 are marked.

Question 4: Same-side interior angles and x (2 points)

Lines a and b are parallel. Two same-side interior angles measure $(3x+12)^\circ$ and $(5x-8)^\circ$. Find x and the measure of each angle.

Question 5: Decide if lines are parallel (2 points)

For each case, decide whether a and b must be parallel. Give a reason.

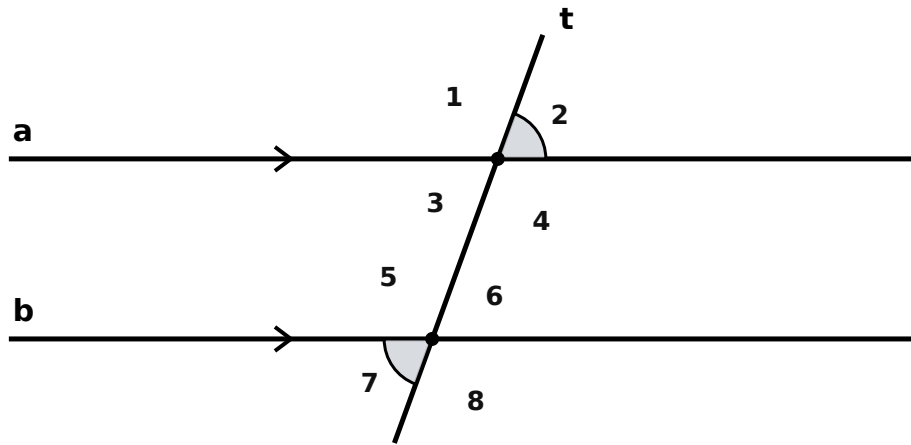


Case (a).

- a. Alternate interior angles $\angle 3$ and $\angle 6$ each measure 83° . (1 point)
- b. Same-side interior angles measure 100° and 70° . (1 point)

Question 6: Proof that lines are parallel (3 points)

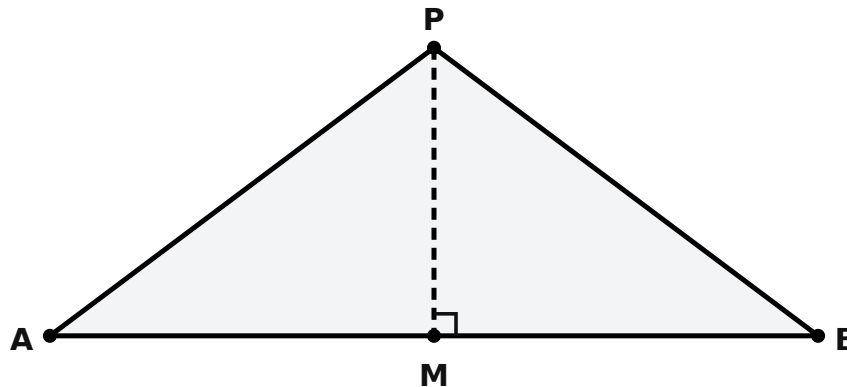
Given $m\angle 2 = m\angle 7$, prove $a \parallel b$. Write a two-column proof.



Angles 2 and 7 are alternate exterior angles.

Question 7: Perpendicular Bisector Theorem proof (3 points)

Given: line ℓ is the perpendicular bisector of $\overline{AB}$ at M , and P is on ℓ . Prove $PA = PB$.



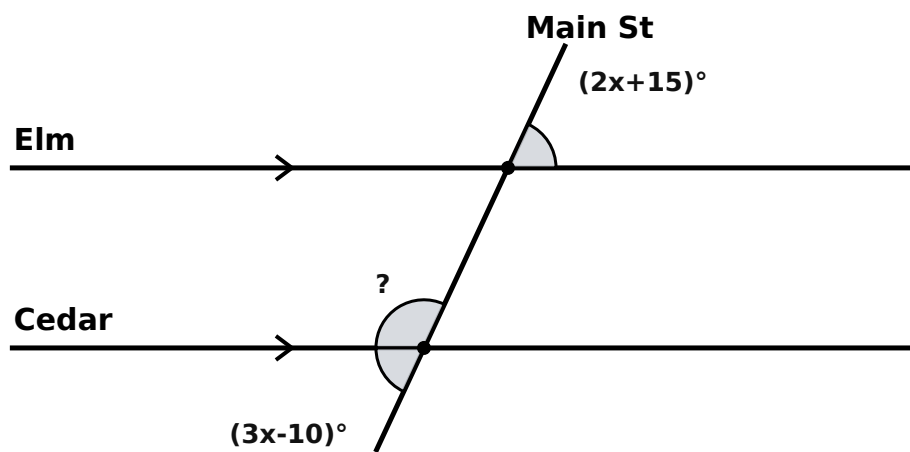
Triangle PMA and triangle PMB share side PM.

Question 8: Equidistant point (2 points)

Point P is on the perpendicular bisector of $\overline{AB}$. $PA = 4x - 3$ and $PB = 2x + 13$. Find x and PA .

Question 9: Parallel avenues (2 points)

Elm Avenue and Cedar Avenue are parallel. Main Street crosses both. The northeast angle at Elm measures $(2x + 15)^\circ$ and the southwest angle at Cedar measures $(3x - 10)^\circ$. Find x and the northwest angle at Cedar.



North is up.