

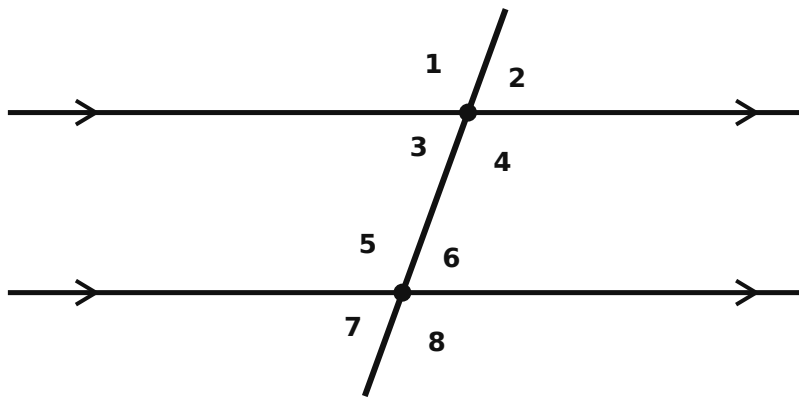
Geometry - Parallel Lines and Transversals - Test Answer Key

Common Core G-CO.C.9 · maths-pdf.fr/en/

Use this answer key and scoring guide for the parallel lines test. Each solution shows the full work, and the scoring note tells how the points are split between method and final answer. Partial credit is listed so that grading stays consistent from one paper to the next.

Geometry · Common Core State Standards: **G-CO.C.9**

Question 1 - Name the pairs [2 pts]

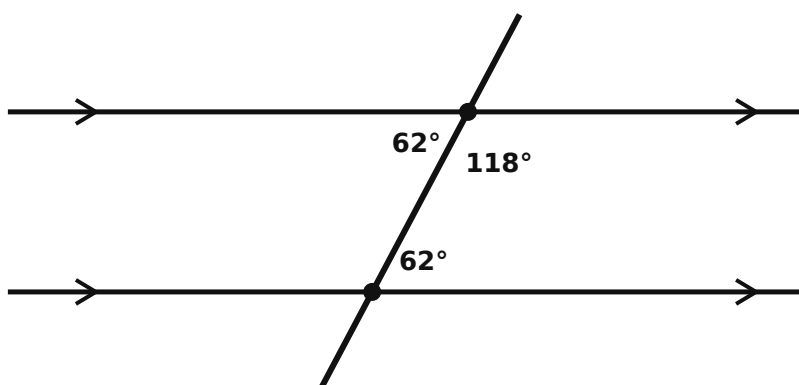


Numbered angles.

- a. Same-side interior angles (supplementary).
- b. Alternate exterior angles (congruent).

Scoring: 1 point per relationship.

Question 2 - Solve for x [3 pts]



Angles 62, 62 and 118 degrees.

- a. $5x - 3 = 3x + 23$, $2x = 26$, $x = 13$
- b. $5(13) - 3 = 62^\circ$
- c. $180^\circ - 62^\circ = 118^\circ$

(a) $x = 13$; (b) 62° ; (c) 118°

Scoring: 1 point per part.

Question 3 - Vertical and linear [2 pts]

Adjacent angles form a linear pair: $2x + 20 + 3x - 10 = 180$, $5x = 170$, $x = 34$.

$2(34) + 20 = 88^\circ$ and $3(34) - 10 = 92^\circ$.

The vertical angles repeat: 88° , 92° , 88° , 92° .

$x = 34$; 88° , 92° , 88° , 92°

Scoring: 1 point for the equation, 1 point for x and all four angles.

Question 4 - Prove parallel [2 pts]

Corresponding angles of parallel lines are congruent. Since 80° is not 82° , the lines are not parallel.

Scoring: 1 point for the answer, 1 point for the reason.

Question 5 - Same-side interior [2 pts]

$$7x+3+5x+9=180$$

$$12x=168$$

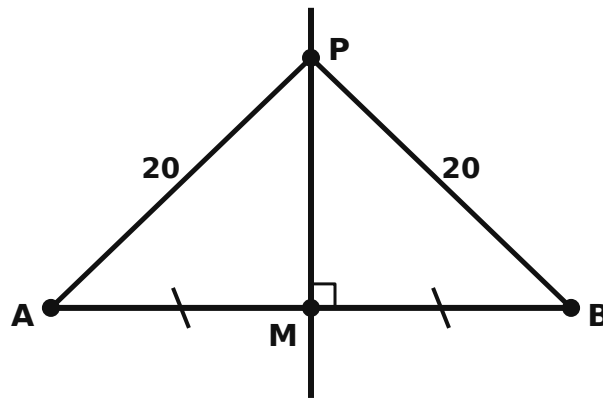
$$x=14$$

$$7(14)+3=101^\circ \text{ and } 5(14)+9=79^\circ$$

$x = 14$; 101° and 79°

Scoring: 1 point for the equation, 1 point for x and the angles.

Question 6 - Perpendicular bisector [3 pts]



$$AM = 12, PA = 20, PM = 16.$$

a. $3x+4=5x-8$, $x=6$, $PA=22$

b. $AM=12$, $PM=\sqrt{20^2-12^2}=\sqrt{256}=16$

(a) $x = 6$, $PA = 22$; (b) $PM = 16$

Scoring: (a) 1 point for the equation, 1 point for x and PA . (b) 1 point.

Question 7 - Midpoint and slope [2 pts]

Midpoint $(4,4)$. Slope of the segment $\frac{6-2}{8-0}=\frac{1}{2}$, so the perpendicular slope is -2 .

$$y-4=-2(x-4) \text{ gives } y=-2x+12.$$

$y = -2x + 12$

Scoring: 1 point for the midpoint and slope, 1 point for the equation.

Question 8 - Road angles [2 pts]

Alternate interior angles are congruent: 73° .

Same-side interior angles are supplementary: $180^\circ - 73^\circ = 107^\circ$.

73° and 107°

Scoring: 1 point each.

Question 9 - Explain [2 pts]

Call the vertical angles a and c , and let b be the angle adjacent to both.

$$a + b = 180^\circ \text{ and } c + b = 180^\circ.$$

So $a + b = c + b$, and subtracting b gives $a = c$.

Scoring: 1 point for the two linear pairs, 1 point for the conclusion.

Total
20 points