

Geometry · Coordinate Geometry Proofs · Test

Common Core G-GPE.B.4, G-GPE.B.5, G-GPE.B.6, G-GPE.B.7 · mathovore.fr

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

This 45-minute test covers coordinate geometry proofs for Geometry (G-GPE.B.4 to G-GPE.B.7). It has nine questions worth 20 points. Show every calculation, give exact values unless a decimal is requested, and justify each proof with slopes or distances.

Test information

- **Grade:** Geometry
- **Chapter:** Coordinate Geometry Proofs
- **Common Core:** G-GPE.B.4, G-GPE.B.5, G-GPE.B.6, G-GPE.B.7
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 3 pts; Question 6: 2 pts; Question 7: 3 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Distance and midpoint (2 points)

Points $A(-4,3)$ and $B(2,-5)$ are given.

- Find the distance AB . (1 point)
- Find the midpoint of $\overline{AB}$. (1 point)

Question 2: Parallel or perpendicular (2 points)

Line 1 passes through $(1,-2)$ and $(4,4)$. Line 2 passes through $(-1,5)$ and $(3,3)$. Line 3 passes through $(0,0)$ and $(2,4)$. Identify every pair of these lines that is parallel and every pair that is perpendicular. Show the slopes.

Question 3: Perpendicular line (2 points)

Write an equation of the line through $(3,5)$ that is perpendicular to the line $y = -\frac{3}{4}x + 2$.

Question 4: Partition a segment (2 points)

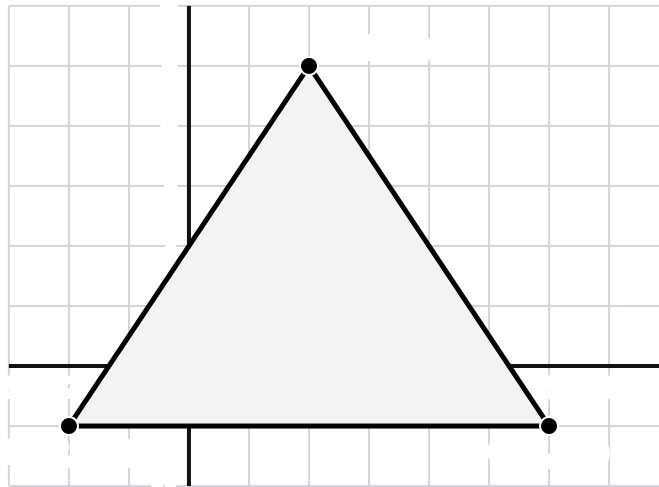
Segment $\overline{AB}$ has endpoints $A(-7,4)$ and $B(5,-2)$.

- Find the point that partitions $\overline{AB}$ in the ratio 1:2 from A . (1 point)
- Find the point that partitions $\overline{AB}$ in the ratio 3:1 from A . (1 point)

Question 5: Triangle perimeter and area (3 points)

Triangle PQR has vertices $P(-2,-1)$, $Q(6,-1)$ and $R(2,5)$.

- Find the perimeter. Give the exact value and the value rounded to the nearest hundredth. (2 points)
- Find the area. (1 point)



Triangle PQR.

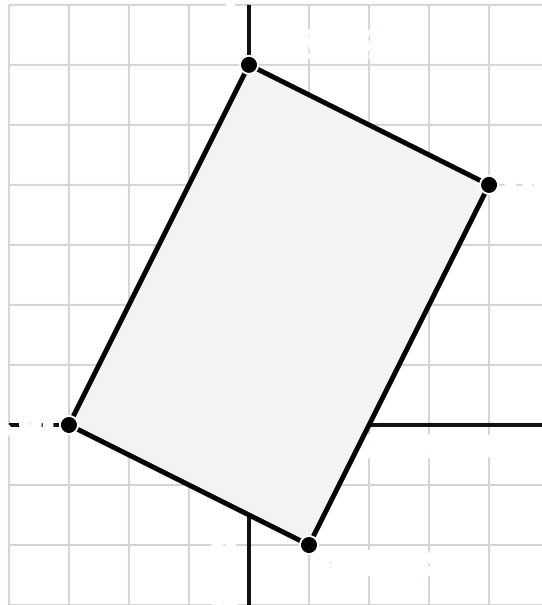
Question 6: Missing endpoint (2 points)

$M(1,-2)$ is the midpoint of $\overline{AB}$ and A is the point $(-5,4)$.

- Find the coordinates of B . (1 point)
- Find the exact length of $\overline{AB}$. (1 point)

Question 7: Prove a rectangle (3 points)

Quadrilateral $JKLM$ has vertices $J(-3,0)$, $K(1,-2)$, $L(4,4)$ and $M(0,6)$. Prove that $JKLM$ is a rectangle, then find its area.



Quadrilateral JKLM.

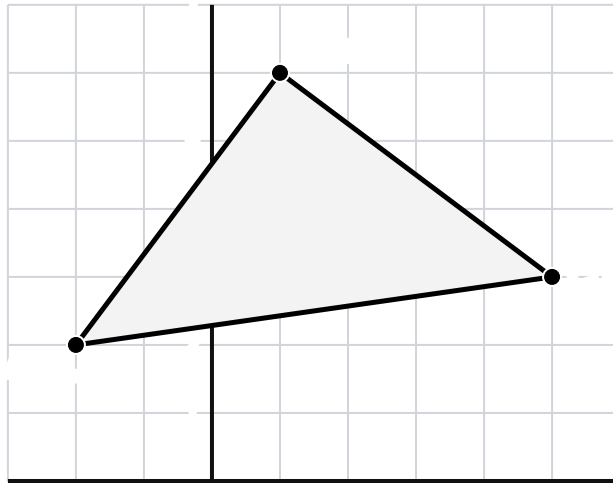
Question 8: Campus map (2 points)

On Priya's school map each unit is 50 feet. The gym is at $G(1,2)$ and the cafeteria is at $C(9,8)$. A straight walkway joins them.

- How long is the walkway in feet? (1 point)
- A bench is placed $\frac{3}{4}$ of the way from the gym to the cafeteria. Find the coordinates of the bench. (1 point)

Question 9: Classify a triangle (2 points)

Triangle ABC has vertices $A(-2,2)$, $B(1,6)$ and $C(5,3)$. Classify it as scalene, isosceles or equilateral, and decide whether it is a right triangle. Justify both answers.



Triangle ABC.