Graphing and Interpreting Points

Graphing and Interpreting Points: Find, Fix, and Work Backward

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Plot (x, y) by going right x units and up y units. A shared x makes a vertical segment; a shared y makes a horizontal segment. Count intervals or subtract the coordinates that change.

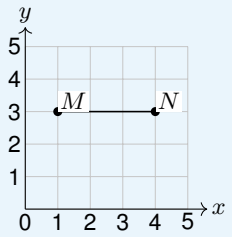
Worked example

How long is the segment from $M(1, 3)$ to $N(4, 3)$? Is it horizontal or vertical?

1. Both points have $y = 3$, so connect them along the same row.

2. The gap is $4 - 1 = 3$ unit intervals.

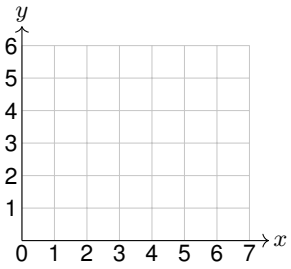
Answer: Horizontal, 3 units long.



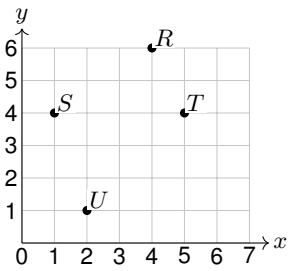
Practice Problems

Show your thinking.

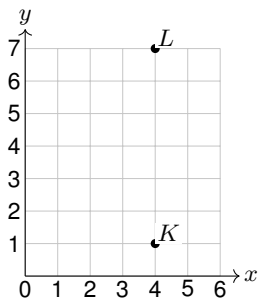
1. Keep $A(2, 5)$ and $C(6, 5)$ fixed. Correct $B(4, 4)$ by changing only its height. Plot the three points on one horizontal segment.



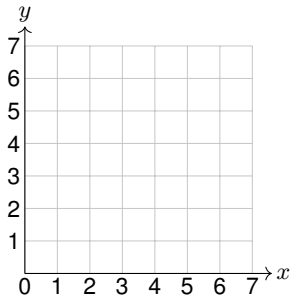
2. List the marked points from highest to lowest. If two points share a height, list the left point first.



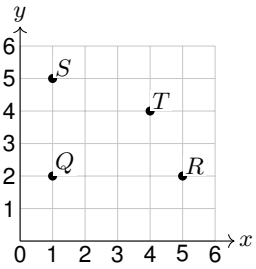
3. Point M is halfway along the vertical segment from $K(4, 1)$ to $L(4, 7)$. Find and plot M and draw KL.



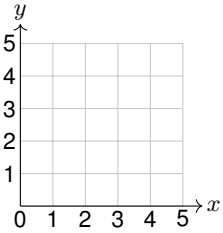
4. Draw the vertical line $x = 4$ and the horizontal line $y = 6$ across the grid. Mark and name their crossing P.



5. From Q, which marked point can be reached with a single horizontal segment? Which can be reached with a single vertical segment? Explain from the grid.



6. A square plan starts at $A(1, 1)$, then $B(4, 1)$, then $C(4, 3)$. Keep A and B fixed. Move C in its column, keeping it above B, to make AB and BC equal. Add D and draw square $ABCD$.



Answer Key

1. $B(4,5)$. All three points lie on $y = 5$.
2. R, S, T, U.
3. $M(4,4)$.
4. $P(4,6)$.
5. Horizontal to R; vertical to S.
6. Corrected $C(4,4)$ and $D(1,4)$.

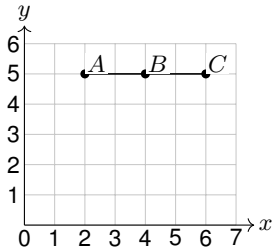
Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. A and C are at height 5, so the segment connecting them is in row 5.

2. Keep B in column 4 and change its height from 4 to 5. Join A to C through $B(4,5)$.



Problem 2

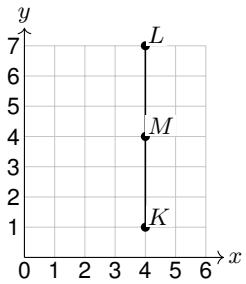
1. R has the greatest height, 6; U has the least, 1.

2. S and T both have height 4. At that height S comes first because $1 < 5$.

Problem 3

1. The segment is in column 4 and spans $7 - 1 = 6$ unit intervals.

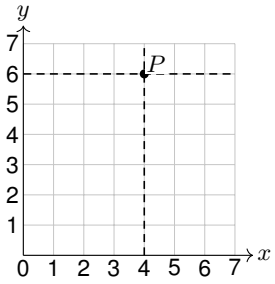
2. Halfway is $6 \div 2 = 3$ units above K, so the height is $1 + 3 = 4$. Place M on KL.



Problem 4

1. Draw the vertical line through 4 on the x-axis. Every point on it has $x = 4$.

2. Draw the horizontal line through 6 on the y-axis. Mark their only crossing at $(4,6)$.



Problem 5

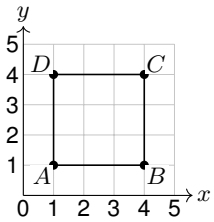
1. $Q(1,2)$ and $R(5,2)$ share height 2.

2. $Q(1,2)$ and $S(1,5)$ share column 1. Point $T(4,4)$ shares neither coordinate with Q.

Problem 6

1. AB is $4 - 1 = 3$ units long. To make BC also 3 units, set the height of C to $1 + 3 = 4$.

2. D shares the $x = 1$ of A and the $y = 4$ of corrected C. Draw the boundary with $D(1,4)$.



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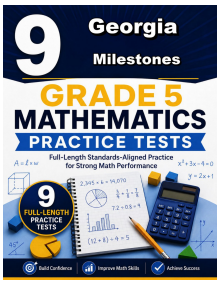

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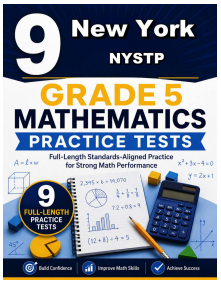

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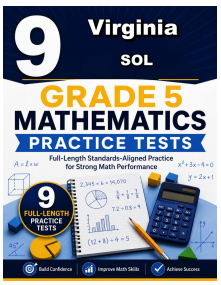

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