Understanding the Coordinate Plane

Understanding the Coordinate Plane: Apply, Compare, and Design

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

QUICK REVIEW

In (x, y), the first coordinate tells how far right to go and the second how far up. Start at the origin $(0, 0)$. On the horizontal x-axis, $y = 0$; on the vertical y-axis, $x = 0$.

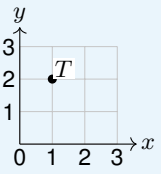
Worked example

A button T is 1 unit right and 2 units up from the origin. Give its ordered pair.

1. The move 1 right gives $x = 1$.

2. The move 2 up gives $y = 2$, so write $(1, 2)$ in that order.

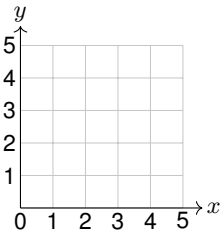
Answer: $T(1, 2)$.



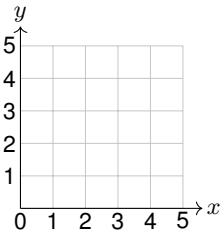
Practice Problems

Show your thinking.

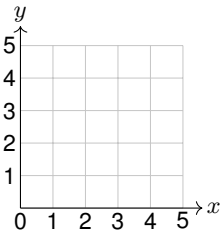
1. An exhibit needs a sensor at least 3 units right of the y-axis and at least 4 units above the x-axis. Choose from $J(2, 5)$, $K(4, 3)$, and $L(3, 4)$. Plot the site that works.



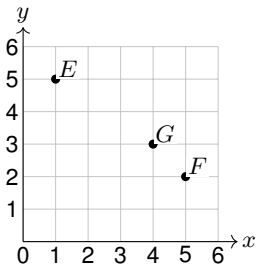
2. A trail marker G is 4 units from the origin on the positive x-axis. Marker H is directly above it by 2 units. Name and plot both points.



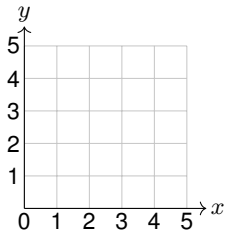
3. A machine swaps the coordinates of a point. Choose a point that stays in the same place and has whole-number coordinates adding to 8. Plot it.



4. Which marked tile is farthest above the x-axis? Which is farthest right of the y-axis? Use the grid to explain.



5. A game accepts only whole-number points with height 2 or 3 and a first coordinate exactly 1 more than the second. Find and plot all accepted points.



6. A seating chart uses $(column, row)$. A note reads $(4, 2)$. The ushers can search only row 4. Will that work? Explain what to tell them.

Answer Key

1. Only $L(3, 4)$.
2. $G(4, 0)$ and $H(4, 2)$.
3. $S(4, 4)$.
4. E is highest; F is farthest right.
5. $(3, 2)$ and $(4, 3)$.
6. No. Search row 2, at column 4.

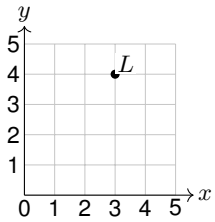
Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. J fails the horizontal rule because $2 < 3$. K fails the height rule because $3 < 4$.

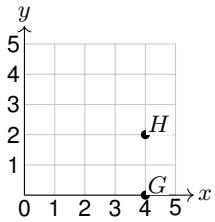
2. L is 3 units right and 4 up, so plot $L(3, 4)$; both minimums are met.



Problem 2

1. On the positive x-axis, G is 4 right and 0 up.

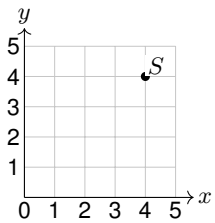
2. Stay in column $x = 4$ and add $0 + 2 = 2$ for the new height. Mark $H(4, 2)$.



Problem 3

1. A pair like $(2, 6)$ moves to $(6, 2)$ after a swap. To stay in place, both coordinates must match.

2. Two equal whole numbers totaling 8 are 4 and 4 because $8 \div 2 = 4$. Plot $S(4, 4)$.



Problem 4

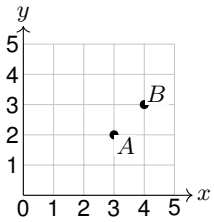
1. The heights of E, F, G are $5, 2, 3$. The greatest is 5 at E.

2. The horizontal coordinates are $1, 5, 4$. The greatest is 5 at F, not E.

Problem 5

1. At height 2, the first coordinate is $2 + 1 = 3$. Mark $(3, 2)$.

2. At height 3, the first coordinate is $3 + 1 = 4$. Mark $(4, 3)$. These are the only allowed heights.



Problem 6

1. The first number 4 names the column, not the row.

2. The second number 2 names the row. Searching row 4 would read the pair backward.

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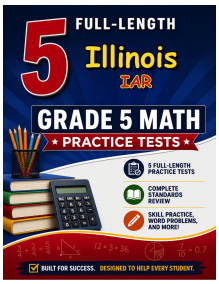

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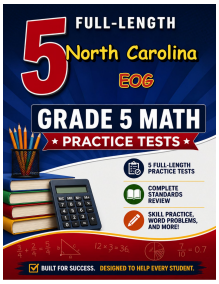

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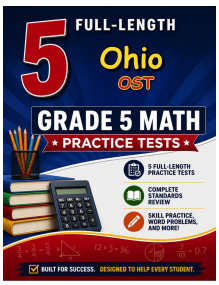

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