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SECTION Ready To Go On? Skills Intervention 1-6 Midpoint and Distance in the Coordinate Plane

Find these vocabulary words in Lesson 1-6 and the Multilingual Glossary.

| Vocabulary <br> coordinate plane leg $\quad$ hypotenuse |
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## Finding the Coordinates of a Midpoint

Find the coordinates of the midpoint of $\overline{K L}$ with endpoints $K(-9,4)$ and $L(7,-6)$.

Write the Midpoint Formula.
Substitute the coordinates of $K$ and $L$ into the midpoint formula.
Simplify to find the coordinates of the midpoint. $\qquad$

## Finding the Coordinates of an Endpoint

$M$ is the midpoint of $\overline{P R}$. $P$ has coordinates ( $-7,1$ ), and $M$ has coordinates (-1, -4). Find the coordinates of $\boldsymbol{R}$.

The coordinates of $R$ are unknown. Let the coordinates of $R$ equal $(x, y)$.
Apply the Midpoint Formula. $(-1,-4)=\left(\frac{-7+x}{\square}, \frac{1+y}{\square}\right)$
Write and solve an equation to find the $x$-coordinate of $R . \frac{-7+x}{\square}=-1 \rightarrow x=$ $\square$
Write and solve an equation to find the $y$-coordinate of $R . \frac{1+y}{\square}=\square \longrightarrow y=\square$
The coordinates of $R$ are ( $\qquad$ , $\qquad$ ).

## Finding Distances in the Coordinate Plane

Use the Distance Formula and the Pythagorean Theorem to find the distance, to the nearest tenth, from $K$ to $L$.

Write the Distance Formula.
What are the coordinates of $K$ ? $\qquad$ of $L$ ?
Substitute the coordinates of $K$ and $L$ into the Distance Formula.


Simplify. The length of $\overline{K L}$ is $\qquad$ .

Write the Pythagorean Theorem.
Substitute the lengths of the legs into the Pythagorean Theorem to find the length of the hypotenuse. $\qquad$ Simplify.

The length of the hypotenuse $K L$ is $\qquad$ .

