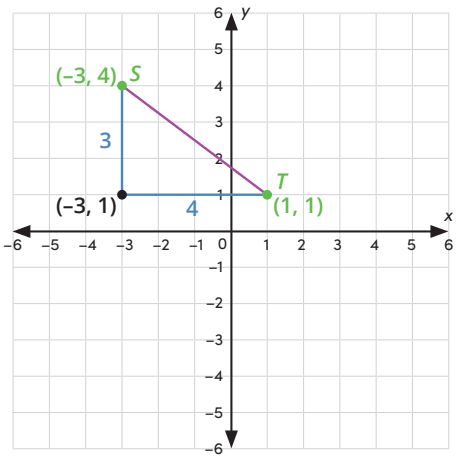
FIND THE DISTANCE BETWEEN TWO POINTS ON THE COORDINATE PLANE

You can use the Pythagorean theorem to find the distance between two points on the coordinate plane.

Let's try it! Find the distance between points *S* and *T*.



First, draw a right triangle with a **hypotenuse** that connects *S* and *T*.

Next, find the length of each **leg**.

To find the length of the horizontal leg, find the absolute value of the difference of the *x*-coordinates of the endpoints on that leg:

$$|-3 - 1| = |-4| = 4$$

To find the length of the vertical leg, find the absolute value of the difference of the *y*-coordinates of the endpoints on that leg:

$$|4 - 1| = |3| = 3$$

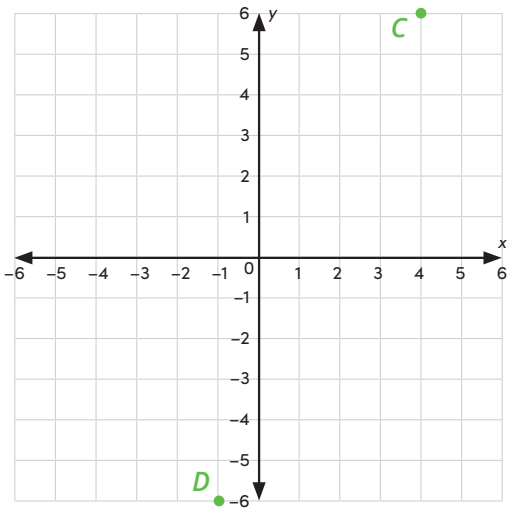
You can check the lengths you got above by counting the horizontal and vertical distances on the coordinate plane.

Finally, use the Pythagorean theorem, $a^2 + b^2 = c^2$, to solve for the length of the hypotenuse. Let $a = 4$ and $b = 3$.

$$a^2 + b^2 = c^2$$
$$4^2 + 3^2 = c^2$$
$$16 + 9 = c^2$$
$$25 = c^2$$
$$\sqrt{25} = \sqrt{c^2}$$
$$5 = c$$

The length of the hypotenuse is the distance between points *S* and *T*. So, the distance between the points is 5 units.

Try it yourself! Use the Pythagorean theorem to find the distance between each pair of points.



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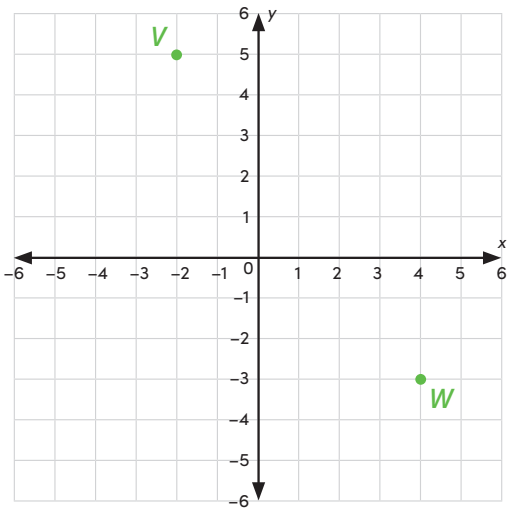

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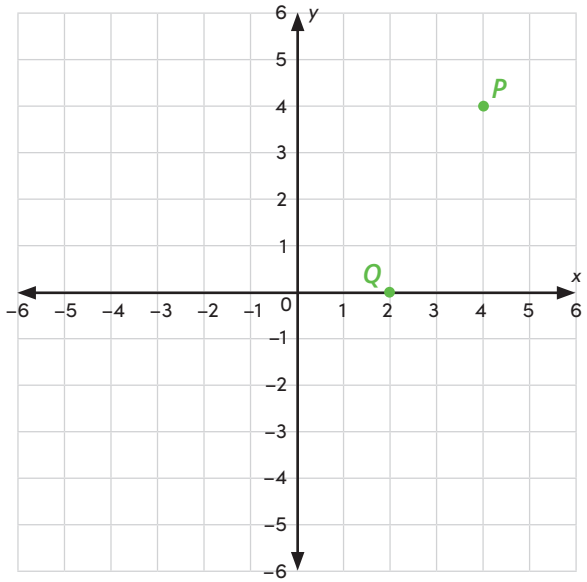
Keep going! Use the Pythagorean theorem to find the distance between each pair of points. Round your answer to the nearest hundredth if needed.



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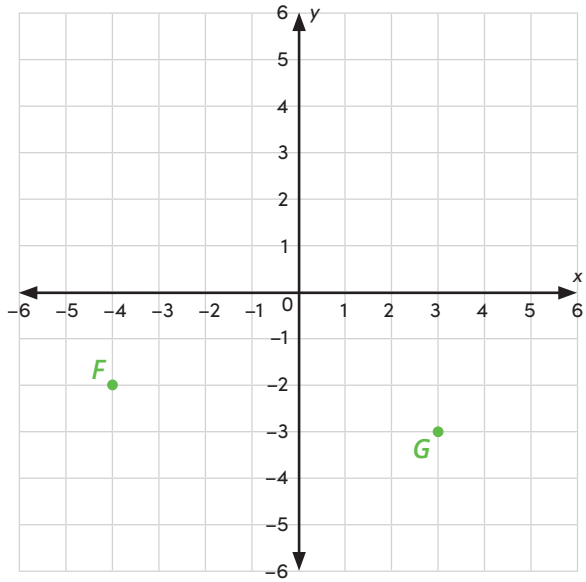

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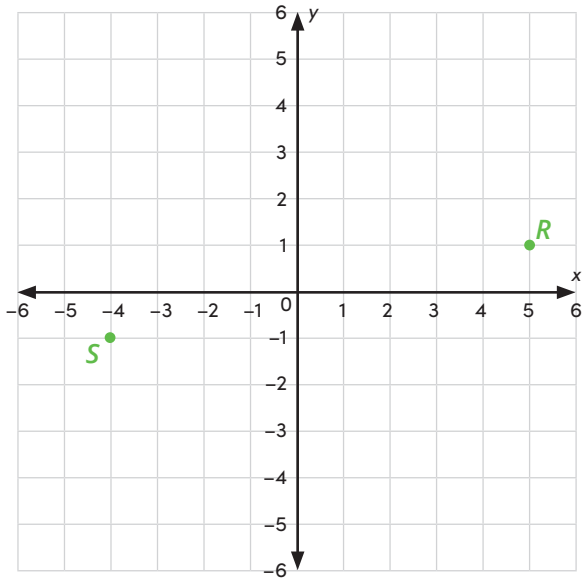

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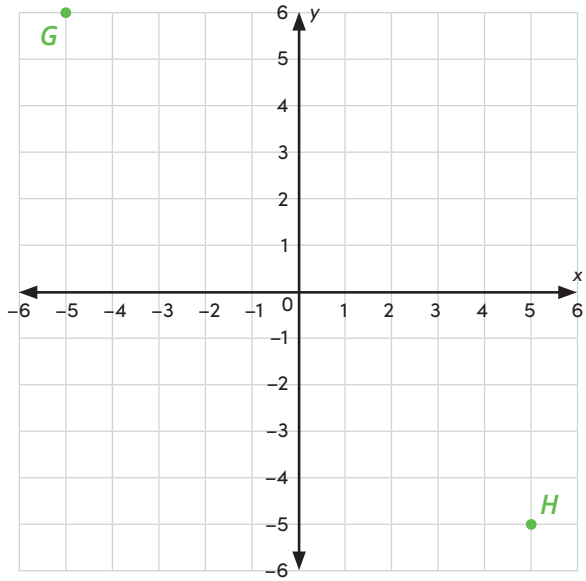

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