Student Response Example: Needs Practice

This is an example of a "Needs Practice" student response using the Mastery Check Rubric.

Use this example to help you understand the types of student responses that could indicate that your student needs to do more practice in the subject area in order to achieve mastery.

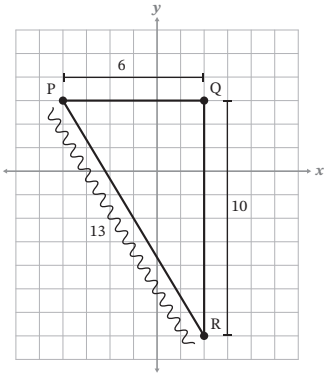
It is not an actual problem from the curriculum.

Show What You Know

Harry was asked to find the perimeter of right triangle PQR.

First, Harry found that the length of $PQ = 6$ and the length of $QR = 10$.

Then Harry counted the spaces between P and R and said it was 13 units long. Harry determined that the perimeter of $\triangle PQR$ is 27 units.



A) Explain the misconception that Harry has and how it can be fixed.

Harry needs to count more carefully on the coordinate plane or use a ruler.

This student did not explain the misconception and suggested an incorrect way to fix the error.

B) Find the correct length for $\overline{PR}$ and the perimeter of the triangle. Show your work.

$PR = 10$ when counted on the coordinate plane since I did not have a ruler.

$$P = a + b + c$$
$$P = 6 + 10 + 10$$
$$P = 26 \text{ units}$$

The correct perimeter of $\triangle PQR$ is 26 units.

The Pythagorean Theorem must be used. The hypotenuse is also the longest side of a triangle and cannot be equal to one of the sides.

The reasoning for the perimeter is correct based on what this student has written down. However, because the hypotenuse was not found, the answer is incorrect.

Student Response Example: Progressing

This is an example of a "Progressing" student response using the Mastery Check Rubric.

Use this example to help you understand the types of student responses that could indicate that your student has adequately mastered the subject area.

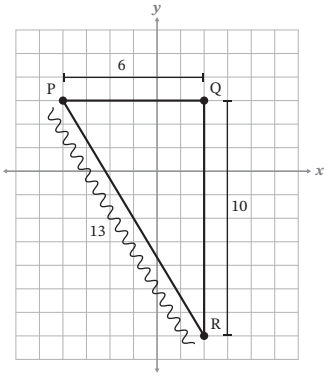
It is not an actual problem from the curriculum.

Show What You Know

Harry was asked to find the perimeter of right triangle PQR.

First, Harry found that the length of PQ = 6 and the length of QR = 10.

Then Harry counted the spaces between P and R and said it was 13 units long. Harry determined that the perimeter of △PQR is 27 units.



A) Explain the misconception that Harry has and how it can be fixed.

Harry cannot find the length of the longest side by trying to count spaces on the graph because it is not horizontal or vertical on the coordinate plane. Harry needs to use the Pythagorean Theorem to find the length of $\overline{PR}$.

Writing "hypotenuse" rather than the "longest side" would show that this student knows the parts of a right triangle.

B) Find the correct length for $\overline{PR}$ and the perimeter of the triangle. Show your work.

$$6^2 + 10^2 = c^2$$
$$36 + 100 = c^2$$
$$\sqrt{136} = \sqrt{c^2}$$
$$c = \sqrt{136} \approx 11.66$$

$$P = 6 + 10 + 11.66$$
$$P = 27.66 \text{ units}$$

The correct perimeter of △PQR is 27.66 units.

This student needs to write the formulas being used and define the variables. The sentence is helpful since the variable P was not defined as the perimeter.

Student Response Example: Exceeding

This is an example of an "Exceeding" student response using the Mastery Check Rubric.

Use this example to help you understand the types of student responses that could indicate that your student has exceptional understanding and mastery of the subject area.

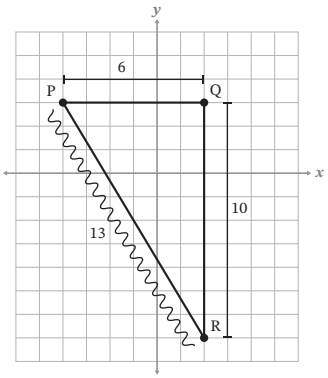
It is not an actual problem from the curriculum.

Show What You Know

Harry was asked to find the perimeter of right triangle PQR.

First, Harry found that the length of PQ = 6 and the length of QR = 10.

Then Harry counted the spaces between P and R and said it was 13 units long. Harry determined that the perimeter of △PQR is 27 units.



A) Explain the misconception that Harry has and how it can be fixed.

Only the length of vertical and horizontal sides can be determined directly from the coordinate plane. Harry cannot count units on the coordinate plane on a diagonal. Since the two legs of the right triangle are known, the hypotenuse can be found using the Pythagorean Theorem, $a^2 + b^2 = c^2$.

This student named the formula being used in addition to explaining Harry's misunderstanding.

B) Find the correct length for $\overline{PR}$ and the perimeter of the triangle. Show your work.

$a = PQ = 6 \qquad b = QR = 10 \qquad c = PR$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 6^2 + 10^2 &= c^2 \\ 36 + 100 &= c^2 \\ \sqrt{136} &= \sqrt{c^2} \\ c = \sqrt{4 \cdot 34} &= 2\sqrt{34} \\ c = \sqrt{136} &\approx 11.66 \end{aligned}$$

$$\begin{aligned} P &= a + b + c \\ P &= 6 + 10 + 11.66 \\ P &= 6 + 2\sqrt{34} \approx 27.66 \text{ units} \end{aligned}$$

I wrote the answer two ways since we do not know if Harry was supposed to round his answer or not.

The formula being used is written out, and the variables are defined for the problem.

The answer is given in rounded and radical form with the reason why both are provided.