

## Student Response Example: Needs Practice

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

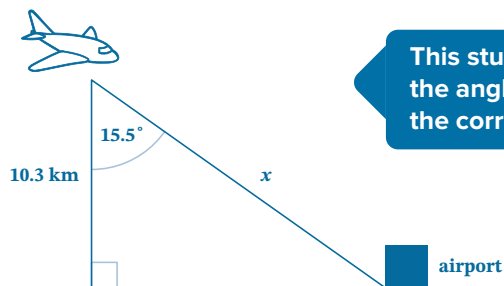
Use this example to help you understand the types of student responses that could indicate that your student needs to do more practice in the subject area in order to achieve mastery.

It is not an actual problem from the curriculum.

### Show What You Know

A pilot needs to determine the distance the plane will fly to reach the airport runway. The plane is flying at an altitude of 10.3 kilometers and descends at a 15.5 degree angle of depression towards the airport.

- A)** Sketch a picture representing the scenario. Label each part of the sketch.



- B)** Determine how far the plane will travel on its descent using trigonometry. Your answer should adhere to significant digits.

$$\begin{aligned}\cos 15.5 &= \frac{10.3}{x} \\ x \cos 15.5 &= 10.3 \\ x &= \frac{10.3}{\cos 15.5} \\ x &= 10.689 \text{ km}\end{aligned}$$

This student has correctly solved part B based on their mislabeled sketch. They understand which trigonometric function to choose using a figure and performed the correct operations, but need to go back and fix their sketch. This student also needs to adhere to significant digits.

## Student Response Example: Progressing

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

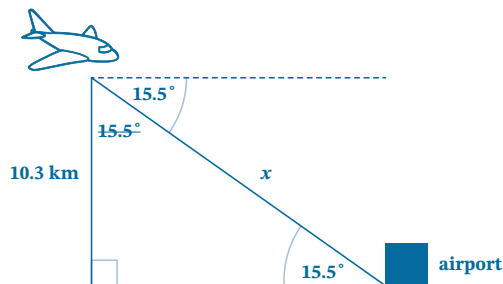
Use this example to help you understand the types of student responses that could indicate that your student has adequately mastered the subject area.

It is not an actual problem from the curriculum.

### Show What You Know

A pilot needs to determine the distance the plane will fly to reach the airport runway. The plane is flying at an altitude of 10.3 kilometers and descends at a 15.5 degree angle of depression towards the airport.

- A) Sketch a picture representing the scenario. Label each part of the sketch.



This student initially did not place the angle of depression in the correct location. When asked “Where would the angle to depression be located?” the student drew the dotted line and used alternate interior angles of parallel lines to determine the correct angle of depression location.

- B) Determine how far the plane will travel on its descent using trigonometry. Your answer should adhere to significant digits.

$$\begin{aligned}\sin 15.5 &= \frac{10.3}{x} \\ x \sin 15.5 &= 10.3 \\ x &= \frac{10.3}{\sin 15.5} \\ x &= 38.542 \\ x &= 38.5 \text{ km}\end{aligned}$$

This student correctly solved for the distance of the plane’s descent but needed to be prompted to adhere to significant digits. When asked to check for significant digits, this student corrected their work and added a label.

## Student Response Example: Exceeding

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

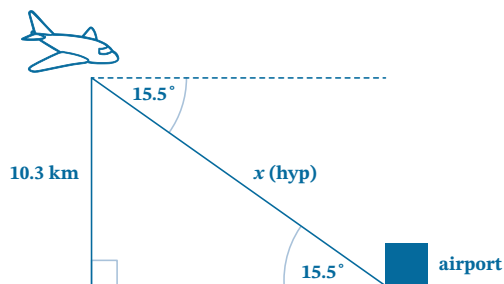
Use this example to help you understand the types of student responses that could indicate that your student has exceptional understanding and mastery of the subject area.

It is not an actual problem from the curriculum.

### Show What You Know

A pilot needs to determine the distance the plane will fly to reach the airport runway. The plane is flying at an altitude of 10.3 kilometers and descends at a 15.5 degree angle of depression towards the airport.

- A) Sketch a picture representing the scenario. Label each part of the sketch.



This student drew the dotted line and used the property that alternate interior angles of parallel lines are congruent to determine the correct angle of depression location. The abbreviation “hyp” was also used to denote the hypotenuse.

- B) Determine how far the plane will travel on its descent using trigonometry. Your answer should adhere to significant digits.

$$\begin{aligned}\sin 15.5 &= \frac{10.3}{x} \\ x \sin 15.5 &= 10.3 \\ x &= \frac{10.3}{\sin 15.5} \\ x &= 38.5 \text{ km}\end{aligned}$$

The plane will fly a distance of 38.5 km when landing.

This student correctly solved for the distance the plane flew when landing, adhered to significant digits, and answered the question in a complete sentence.