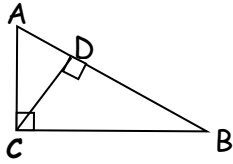


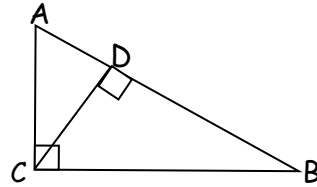
SHOW ALL WORK TO GET ANSWER. LEAVE ANSWERS EXACT OR ROUND TO THREE DECIMAL PLACES.

I. Use similar right triangles to find the missing pieces in #1-6

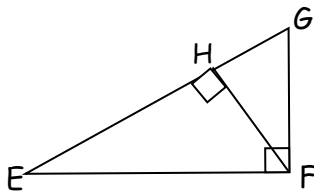
1. If $AD=7$ and $AB=11$, find CD .



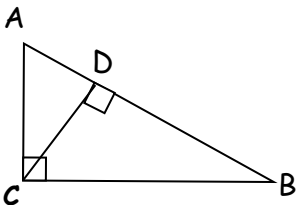
2. If $AB=12$ and $AD=4$, find BC



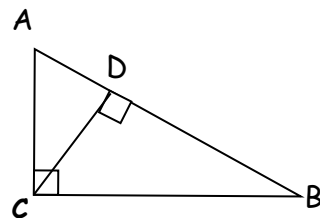
3. If $HG=4$ and $EF=3\sqrt{5}$, find EH .



4. If $CD=8$ and $AD=6$, find AB .

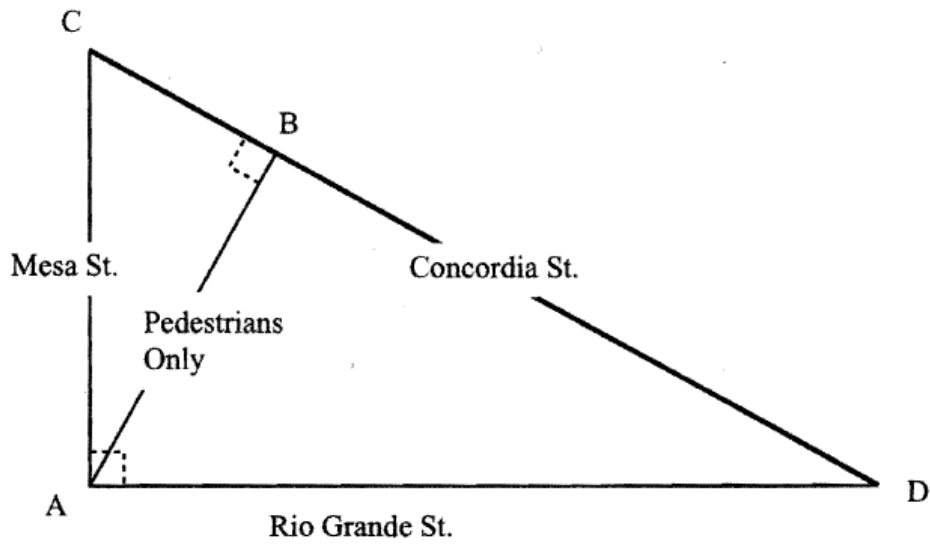


5. If $AC=7$ and $AB=12$, find BD .



6. The altitude to the hypotenuse of a right triangle divides the hypotenuse into segments whose lengths are in the ratio of 1:4. The length of the altitude is 12. How long is the hypotenuse?

7. Use the picture below to answer questions 1 and 2:



Yuma City has an historic region downtown between Mesa St., Rio Grande St., and Concordia St. Mesa and Rio Grande Streets intersect to form a right angle. There is a Pedestrians Only path from the intersection of Mesa and Rio Grande to Concordia that intersects Concordia at a right angle. A sightseer started at the intersection of Mesa and Rio Grande and walked the 6 blocks long path to Concordia. She then walked 4 blocks along Concordia to Mesa and back to the intersection of Mesa and Rio Grande. After that she walked to the intersection of Rio Grande and Concordia.

Answer the following questions, completely justifying your answers with geometric explanations.

1. How far did the sightseer walk?
2. If another sightseer had started at the intersection of Mesa and Concordia and walked along Concordia Street to the intersection of Concordia and Rio Grande, how far would he have walked?