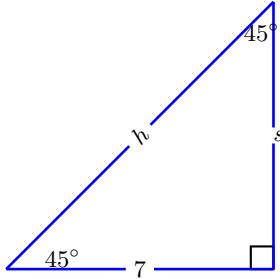
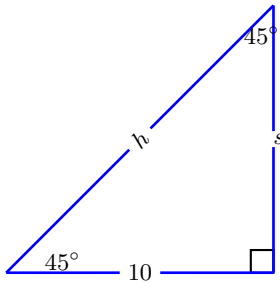


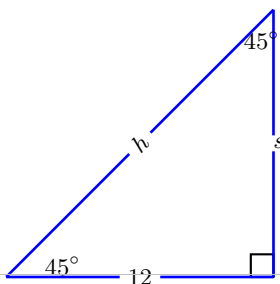
1. Observe the following 45-45 Triangle, with only one side given, then determine the other two sides.



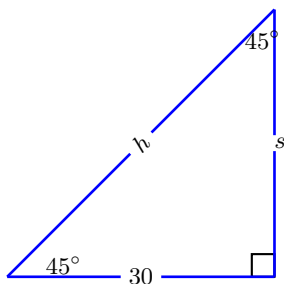
2. Observe the following 45-45 Triangle, with only one side given, then determine the other two sides.



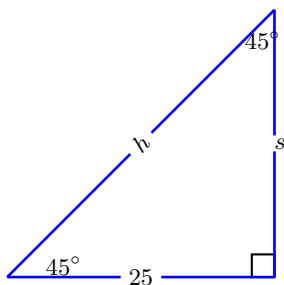
3. Observe the following 45-45 Triangle, with only one side given, then determine the other two sides.



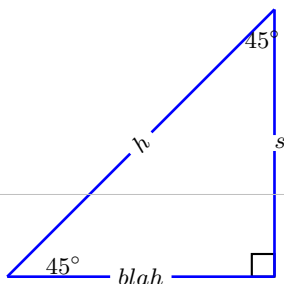
4. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



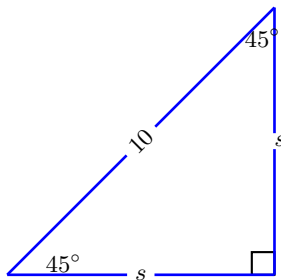
5. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



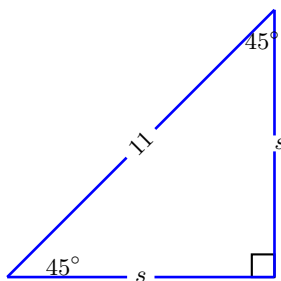
6. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



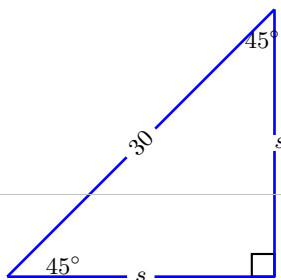
7. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



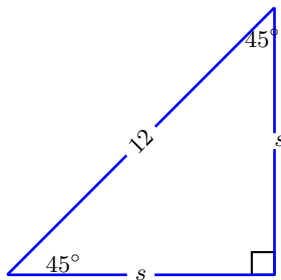
8. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



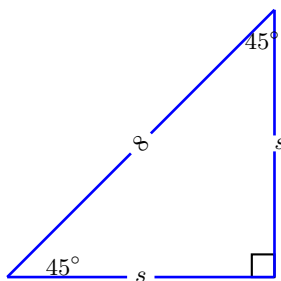
9. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



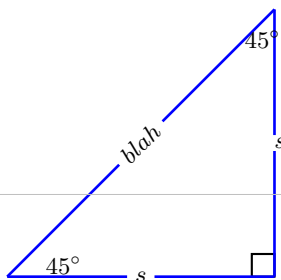
10. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



11. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.

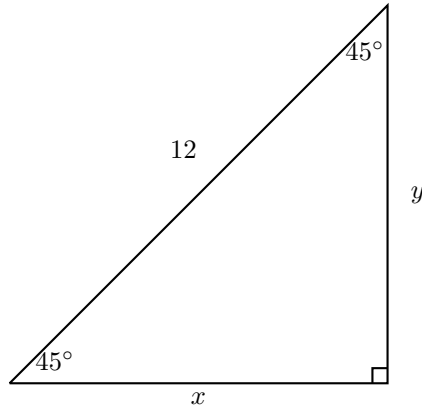


12. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.

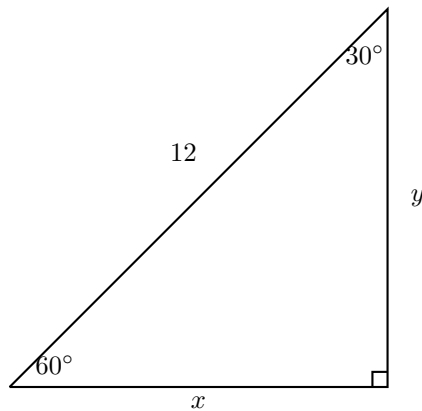


13. Prove the 45-45 Theorem

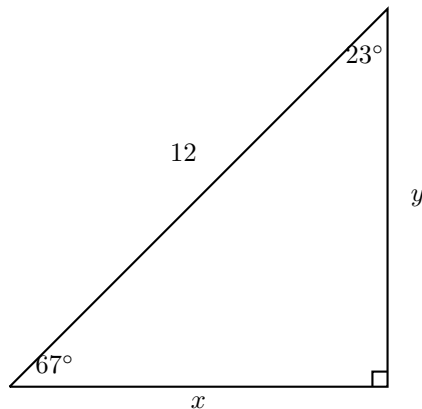
14. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



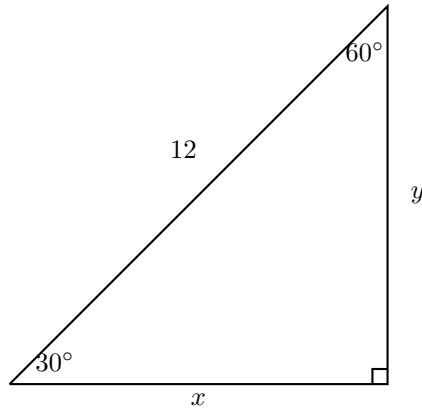
15. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



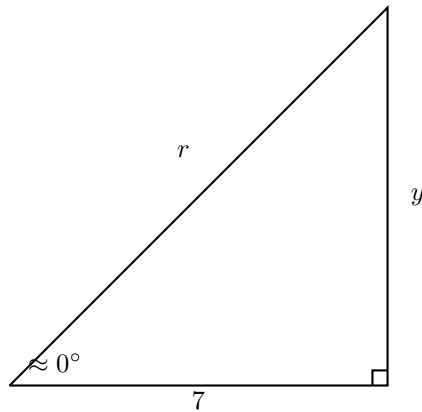
16. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



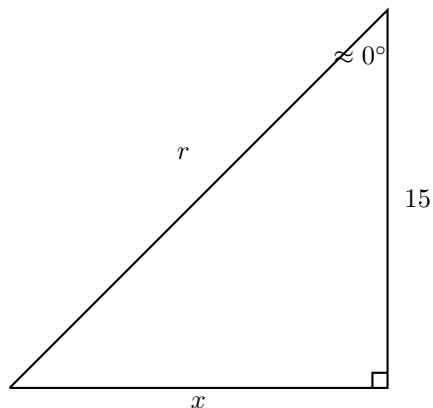
-
17. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



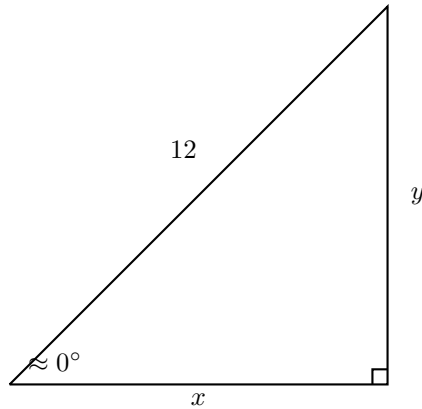
-
18. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



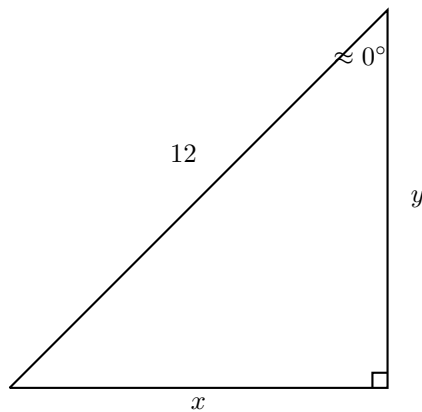
-
19. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



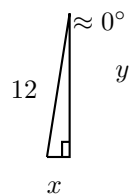
-
20. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



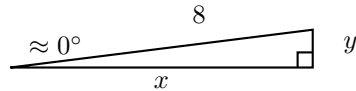
-
21. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



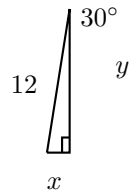
-
22. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



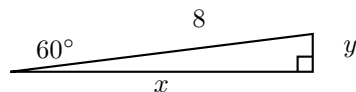
-
23. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



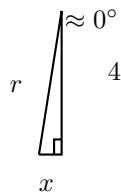
24. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



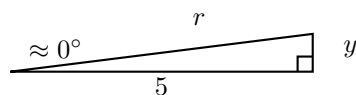
25. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



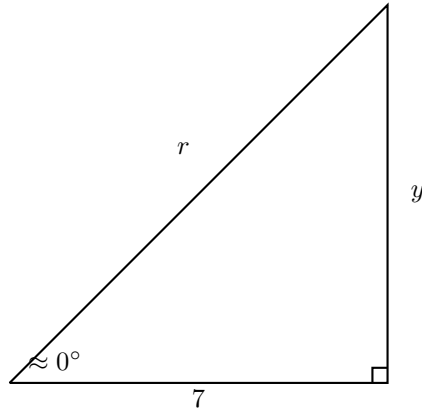
26. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



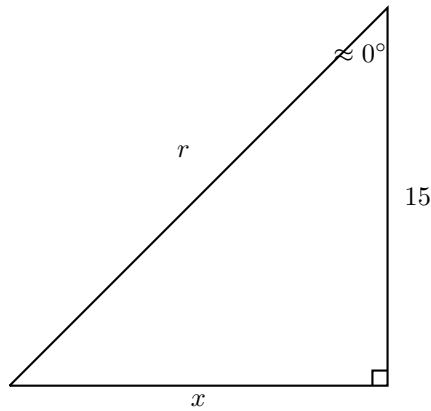
27. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



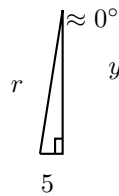
28. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



29. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



30. What is wrong [if anything] with this picture?

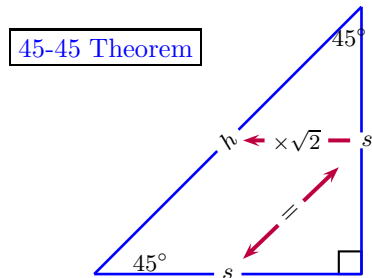


THE 45-45 Theorem [45-45T]:

The 45-45 Theorem describes exactly what the ratios are for these very special triangles, namely triangles where the angles are 45, 45 and 90 degrees. Note, if we accept that across from smaller angles we find smaller sides, and across from larger angles we find larger sides. Then, on a 45-45 triangles, since the two 45° angles are the same, the corresponding sides are the same. Furthermore, if either leg measures s units and the hypotenuse measures h units, then the ratio of these sides is given by

$$\frac{s}{h} = \frac{1}{\sqrt{2}}$$

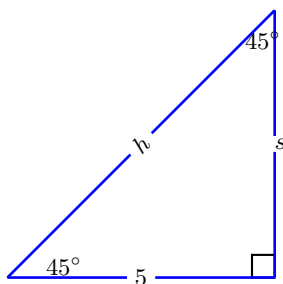
Said differently $s\sqrt{2} = h$, or



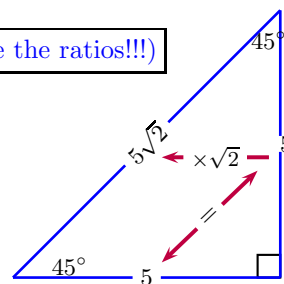
Examples:

Example:

Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.

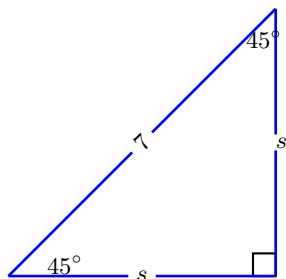


solution: (use the ratios!!!)

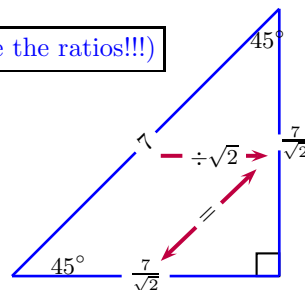


Example:

Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



solution: (use the ratios!!!)



The Almost Triangles:

What is a triangle? The first impression of a triangle is "a connected figure with 3 straight sides". If so, can some of the sides be *zero*? If one of the sides is zero does the shape stop being a triangle? As one famous president once said, it depends on what we mean by *is*. Definitions in math are not set in stone. Although they mostly agree, there is still great variance from author to author. A triangle with one side size zero may be a triangle for one author, while not for another. Moreover, there is no math-definitions police currently on task. Thus, to some degree, we are free to create or destroy any definition to our liking. We may think about it as a game where we are allowed to make all the rules, all the characters, definitions and all the ideas. The caveat is that if our rules are too far removed from reality or from mainstream mathematics, few people may join in, and we may find ourself the only ones playing such game. In general, people who make up their own rules are either trailblazers or lost souls.

Be that as it may, *we* will accept triangles where one of the sides is size zero, and we will still call them 'almost triangles'.

