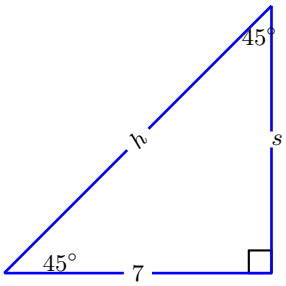
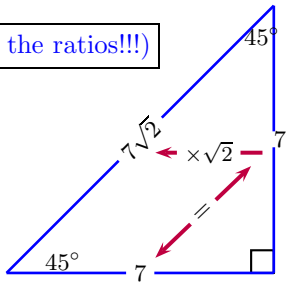
1. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



solution: (use the ratios!!!)

Solution:



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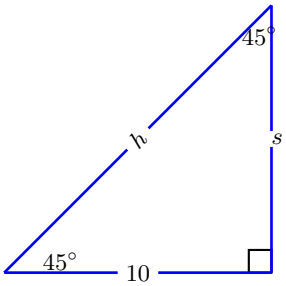
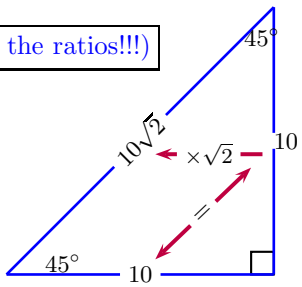
2. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



solution: (use the ratios!!!)

Solution:



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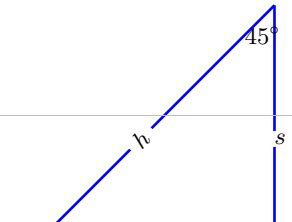
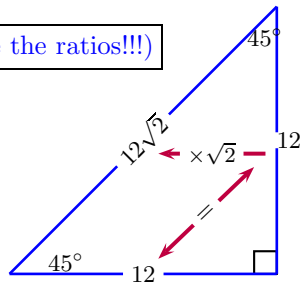
3. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



solution: (use the ratios!!!)



Solution:

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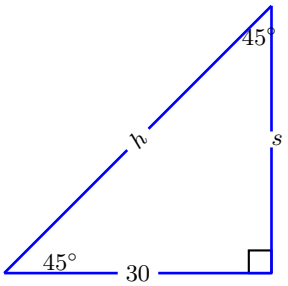
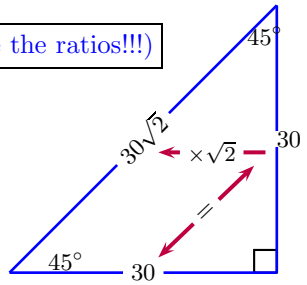
4. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



solution: (use the ratios!!!)



Solution:

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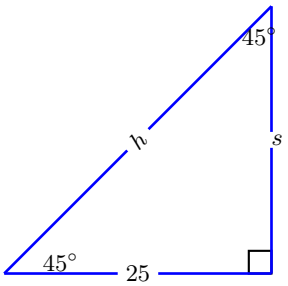
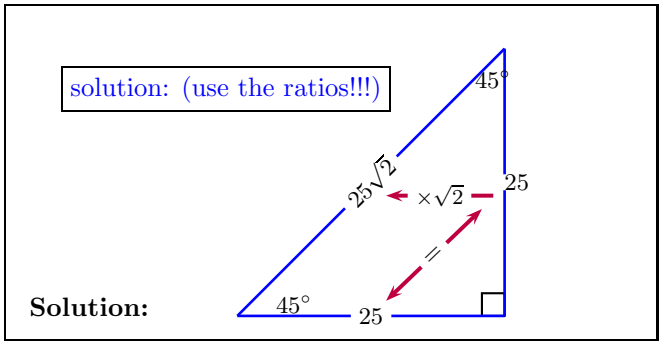
5. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.





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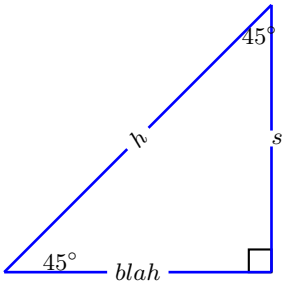
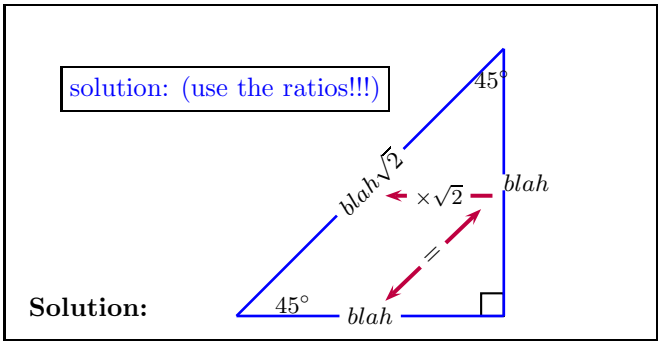
6. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.





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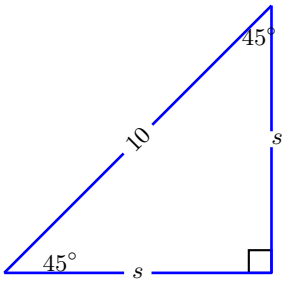
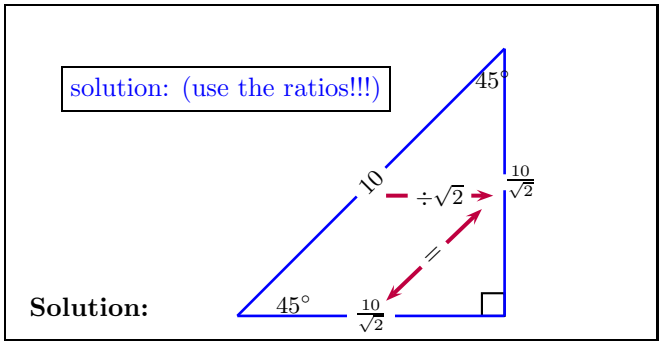
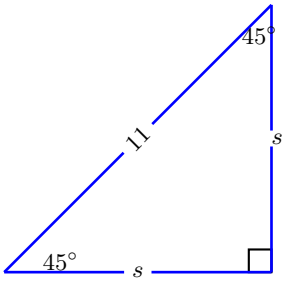
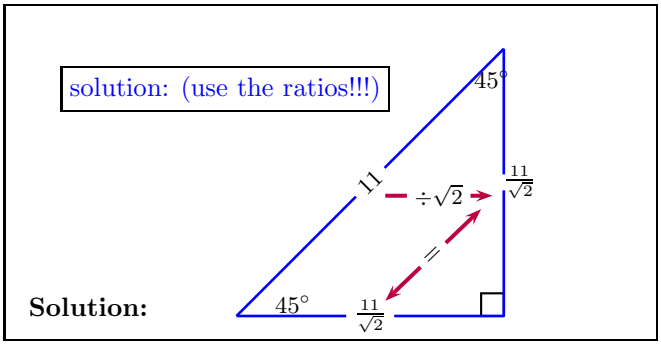
7. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



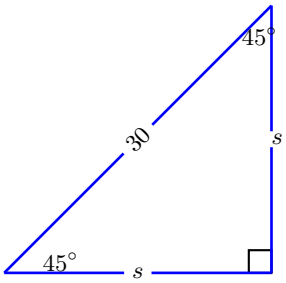


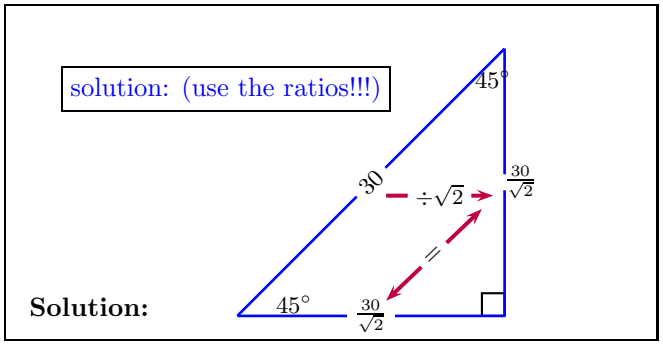
8. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



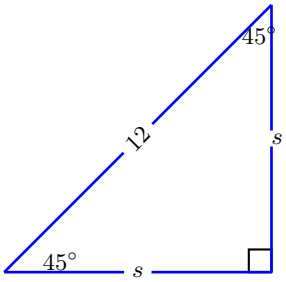


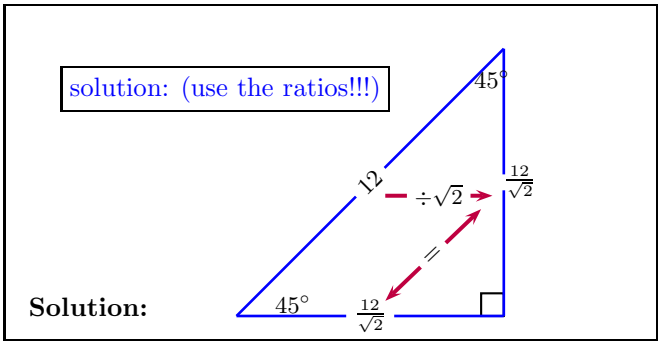
9. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



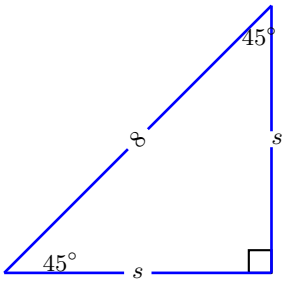


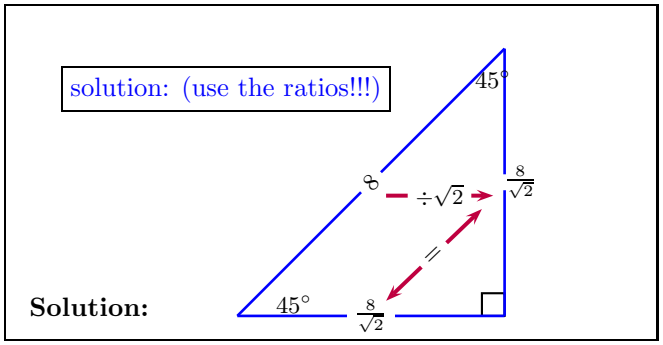
10. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.



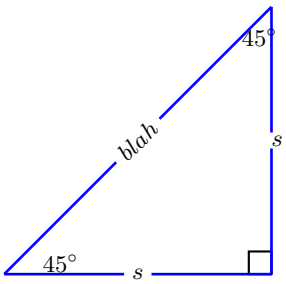


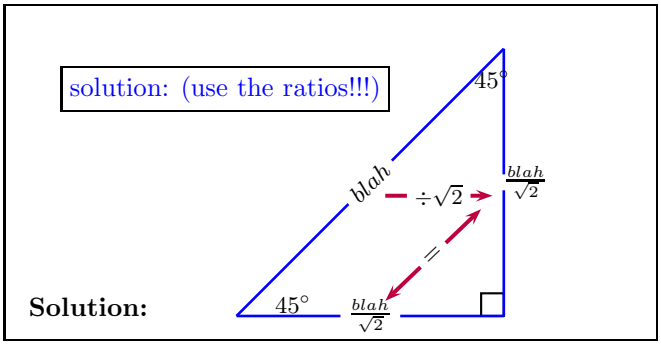
11. Observer the following 45-45 Triangle, with only one side given, then determine the other two sides.





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

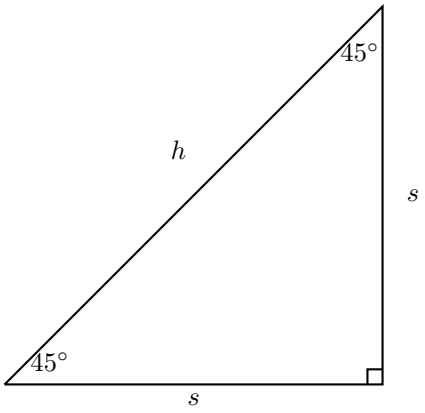




13. Prove the 45-45 Theorem

Solution: OWN IT! Why is $h = \sqrt{2}$?

At the heart of the 45.45 Theorem is the Pythagoras Theorem. To see why this is true, we simply begin with a typical 45.45 triangle, and apply Pythagoras.



$$\begin{aligned} s^2 + s^2 &= h^2 \\ 2s^2 &= h^2 \\ \pm\sqrt{2s^2} &= h \\ \pm s\sqrt{2} &= h \end{aligned}$$

For 'size' we will use the positive length thus

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

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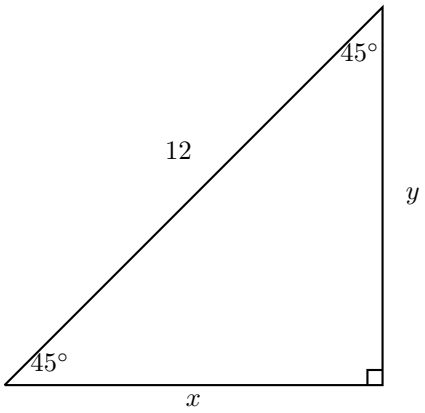
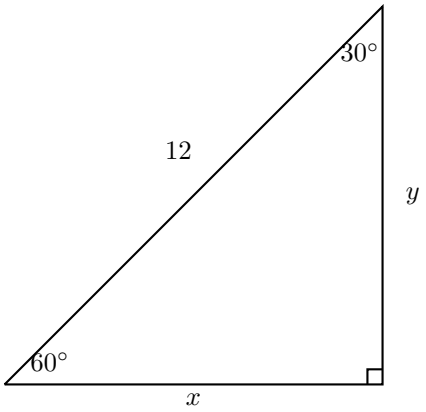
14. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



Solution: $y = \frac{12}{\sqrt{2}}$ $\quad x = \frac{12}{\sqrt{2}}$

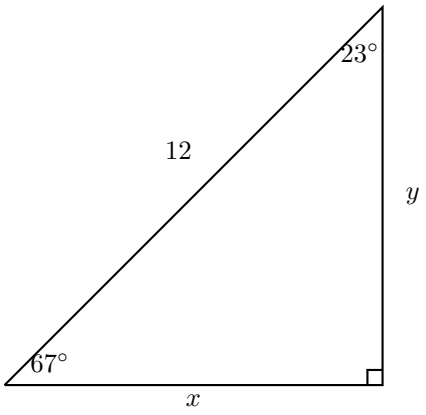
---

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]



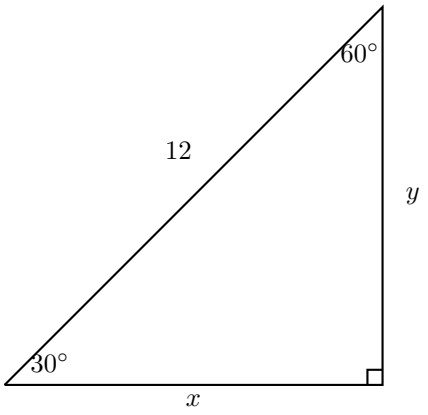
Solution: $y = \frac{12}{2} \cdot \sqrt{3}$ $\quad x = \frac{12}{2}$

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]



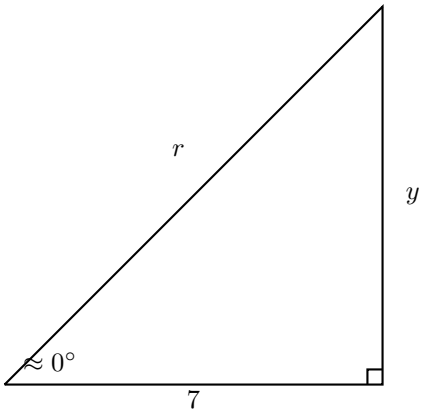
Solution: don't know the ratios for 23° triangle yet...

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]



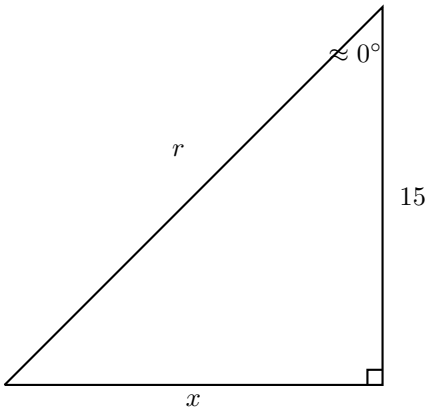
Solution: $y = \frac{12}{2}$ $x = \frac{12}{2} \cdot \sqrt{3}$

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]



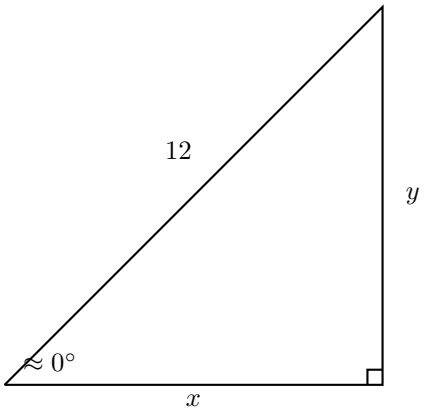
Solution: $r \approx 7$ $y \approx 0$

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]



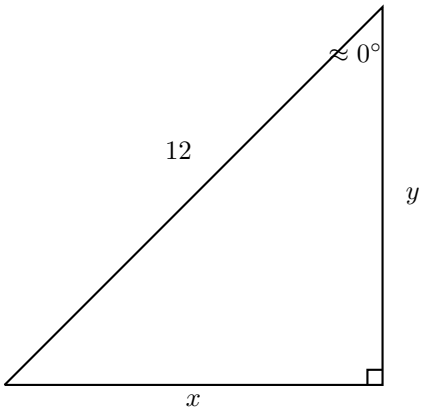
Solution: $r \approx 15$ $x \approx 0$

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]



Solution: $x \approx 12$ $y \approx 0$

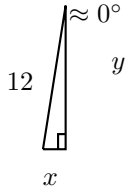
21. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



Solution: $y \approx 12$ $x \approx 0$

---

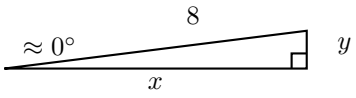
22. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



Solution: $x \approx 0$ $y \approx 12$

---

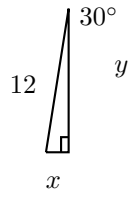
23. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



Solution: $x \approx 8$ $y \approx 0$

---

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]



Solution: $x = 6 \qquad y = 6\sqrt{3}$

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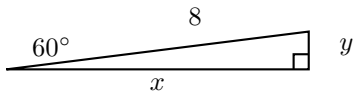
25. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



Solution: $x = 4 \qquad y = 4\sqrt{3}$

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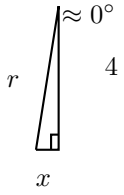
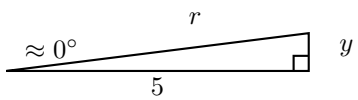
26. Solve the following triangle or state that we have not yet learned how to solve this type of triangle. [may not be drawn to scale]



Solution: $x \approx 0$

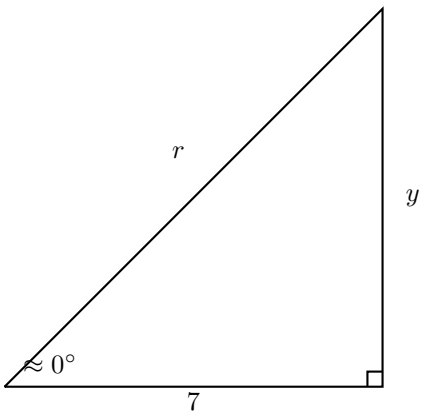
---

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]



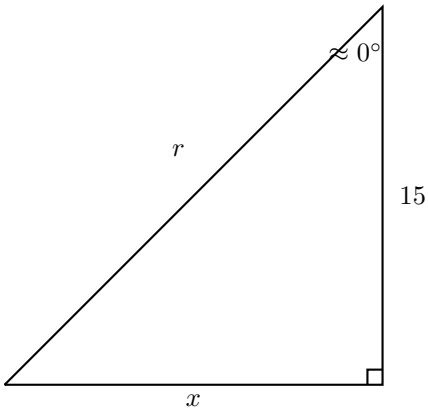
Solution: $r \approx 5 \qquad y \approx 0$

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]



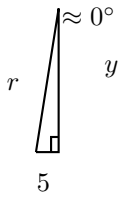
Solution: $y \approx 0 \qquad r \approx 7$

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]



Solution: $x \approx 0 \qquad y \approx 15$

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



Solution: across from approx. 0° should be a side that is approx. 0, NOT 5