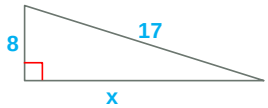
Warmup 3/(# of years ago Lorde made Royals)

1) **Solve:**

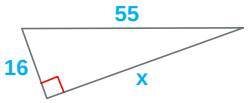


2) **Your friend set up the problem like $8^2 + 17^2 = x^2$. What would you say to help your friend understand what to do instead?**

3) **Remembering the 180 rule for triangles…why don't the three numbers from the problem in #1 add up to 180?**

One more (don't need to write)

- **Which of these is a reasonable estimate for the third side?**

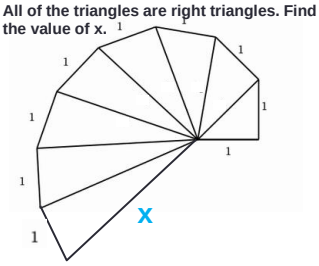


A. **14**
B. **27**
C. **49**
D. **62**

TURN IN WARMUPS

Spiral Problem

All of the triangles are right triangles. Find the value of x.



ADVICE: (For **ALL** of math, not just this unit!)

- Do not round your answers until the END of the problem.

Back to your notes from Yesterday…

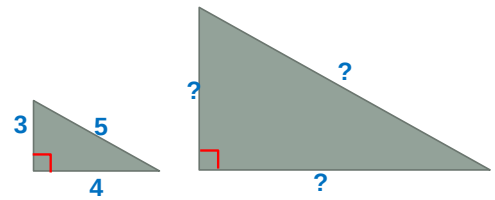
Common Pythagorean Triples

- 3, 4, 5
- 5, 12, 13
- 8, 15, 17
- 7, 24, 25

- MEMORIZE THESE!!! (It will pay off!)

If 3, 4, 5 works…

- Could you tell me the lengths of the sides of a triangle that would be **similar** to this triangle?



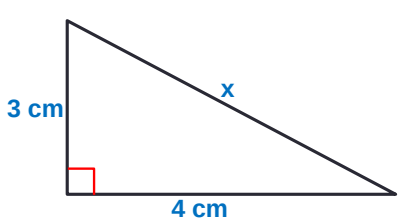
Common Pythagorean Triples

- 3, 4, 5
- 5, 12, 13
- 8, 15, 17
- 7, 24, 25

- + any multiple of these!

- 3, 4, 5 $\xrightarrow{x2}$ 6, 8, 10
- 3, 4, 5 $\xrightarrow{x3}$ 9, 12, 15
- 3, 4, 5 $\xrightarrow{x6}$ 18, 24, 30
- 3, 4, 5 $\xrightarrow{x100}$ 300, 400, 500

Find the length of the side!



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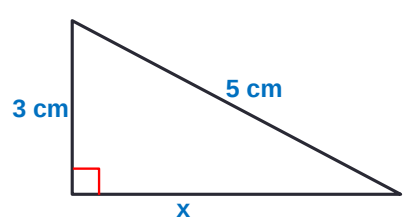

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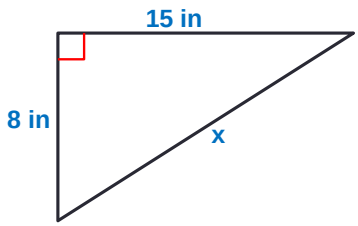

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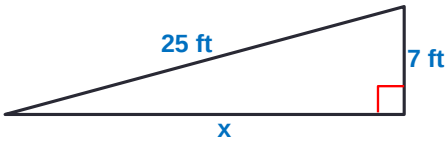

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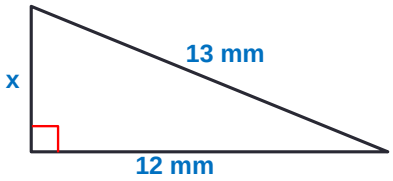

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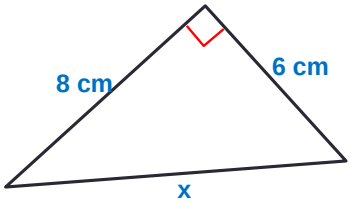

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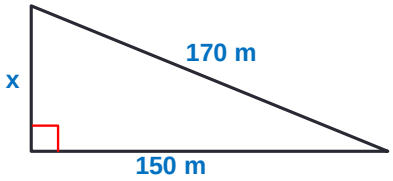
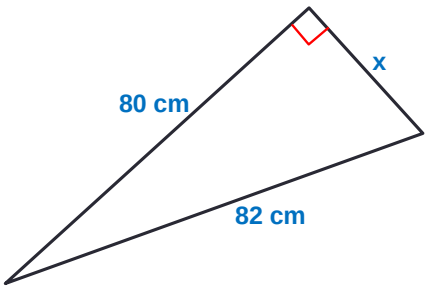


Find the length of the side!



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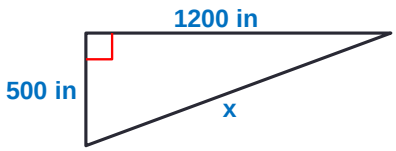

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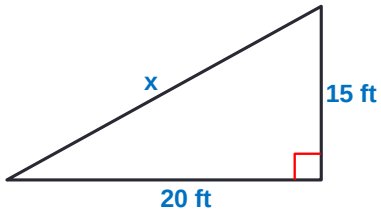

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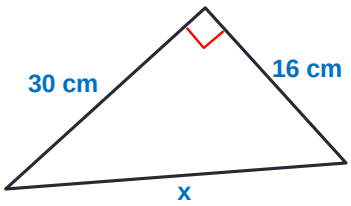

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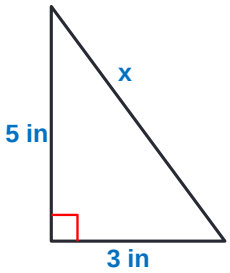

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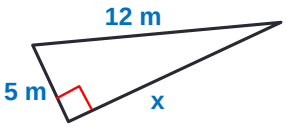
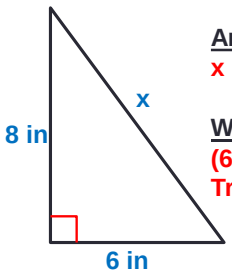


How do I show work?

- If you have some of these Pythagorean Triples memorized, you can use this knowledge in place of working out the math. However you **MUST** say "Pythagorean Triple" or "Pyth. Triple" or something like that so that I know your thought process.

So you could write…



Answer
x = 10

Work
(6, 8, 10) = Pyth. Triple

RAISE YOUR HAND…

- If you can tell me a **square** number
- You may not say one that someone else has already said.

When not knowing math can cost you $15,000…

- https://www.youtube.com/watch?v=BbX44YSsQ2I

Today: Pythagorean Theorem Applications

- Real-world situations where the Pythagorean Theorem is used
- Still on the "Pythagorean Theorem" page of notes

Application - Ladders

- A 15-foot ladder is propped up against a 15-foot building. When laid flat against the building, it looks like this:

- If the bottom of the ladder was moved **OUT** 4 feet, what would happen? How far below the top of the building would the ladder go?

Application: Ladders

1. A 15-foot ladder is propped up against a 15 foot-tall building. The bottom of the ladder is 4 feet from the building. How high up the building does the ladder reach? **Draw a picture and use it to solve!**
2. If you want to position the ladder so that it will exactly reach a window whose windowsill is 2 feet from the top of the building, how far from the building would you have to position the bottom of the ladder?
3. CHALLENGE/Early Finisher: How far away from the building does the bottom have to be so that the distance from the ladder to the building is the **same** as the distance from the ground up to the top of the ladder? (Also, does this seem safe?)

Application: TV's

- Carly bought a 32 inch TV.

- However, when she measured the length, she found that it was only 28 inches.
- What's the deal???

Application: TV's

- TV's are actually measured by the length of their **diagonal.**
- If Carly's 32-inch TV was only 28 inches long, how tall was it?

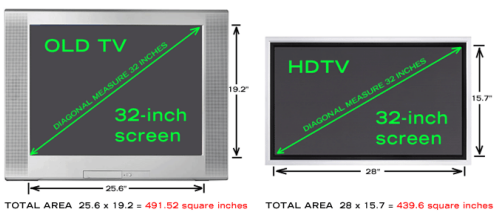
  ≈15.5 in

- Steven also bought a 32-inch TV, but his was only 25.6 inches long. How tall was his?

  19.2 in

- Whose TV has a greater **AREA**?

Carly: ≈ 433.8 in^2 **Steven: = 491.52 in^2**



Homework:

"Measuring Your TV" Sheet

- Go home and find out what size TV you have. Hopefully, your parents will remember, or you can find the box or something.
- Measure the length and width of the TV, then check the math to see if you get the right diagonal length.
- + ALEKS