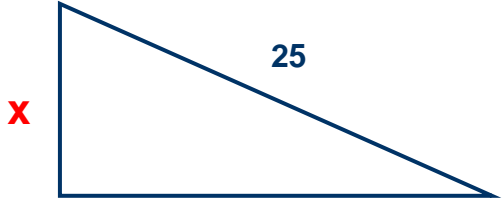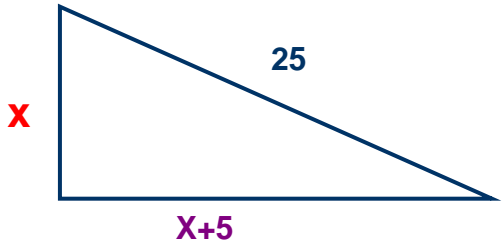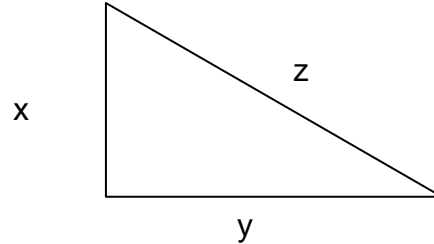| Instructions	Example
1. Carefully read the problem, note what numerical data is given, and what is being asked for.	A backyard is shaped like a **right triangle**, with the hypotenuse measuring **25 feet**. The longer side is **5 feet longer than the shorter side**. **What is the length of the shorter side**?
2. Make a sketch, drawing, or picture of the described situation, and put all the given data from the problem on the drawing. Look for what the problem's question is. In other words, what do they want to know? In this example, they want to know the length of the shorter side. Let x = that which they are asking for. Let x = the length of the shorter side.	 **x** ⟍ 25
Write down any numerical relationships that the problem gives you. In this case, the longer side is 5 feet longer than the shorter side. Thus, x + 5 = the longer side.	 **x** ⟍ 25 X+5

3. Look for other information (numbers, formula, etc.) that you can use to relate all the items. Pythagorean formula says that the square of the hypotenuse of a right triangle is equal to the sum of the squares of the other two sides.	Hypotenuse squared = Sum of two sides squared, $z^2 = x^2 + y^2$
4. Write that formula using the givens and unknowns. Hypotenuse = 25 x = short side y = x + 5 = long side	$$z^2 = x^2 + y^2$$ $$25^2 = x^2 + (x+5)^2$$
5. Solve for x: Subtract 625 from both sides. Combine like terms. Factor out the GCF (2) and divide both sides by the GCF. Factor the trinomial. Set factors to zero. Solve for x. x = -20 is unreasonable because you cannot have a negative distance.	$25^2 = x^2 + (x+5)^2$ $625 = x^2 + x^2 + 10x + 25$ $625 - 625 = x^2 + x^2 + 10x + 25 - 625$ $0 = 2x^2 + 10x - 600$ $\dfrac{0}{2} = \dfrac{2(x^2 + 5x - 300)}{2}$ $0 = x^2 + 5x - 300$ $0 = (x-15)(x+20)$ $x - 15 = 0$ $x = 15$ $x + 20 = 0$ **X = 15** $x = -20$
Answer: The shorter side is 15 feet.	