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| *The Pythagorean Theorem for right triangles is* $a^{2}+b^{2}=c^{2}$*, where a and b are legs and c is the hypotenuse. It can be used to find missing side lengths of right triangles, and it can be used to find the distance between two points on the coordinate plane.* |
| Take the **square root** at the end if you’re finding a missing length!**Remember if you’re given a leg and the hypotenuse, you’ll need to SUBTRACT to get to the other leg length!** |
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| **Converse of the Pythagorean Theorem:**For any three side lengths (a, b, and c) if $a^{2}+b^{2}=c^{2}$ then the three lengths form a right triangle. Remember that the hypotenuse always goes in for *c*, so c should be the longest length. |
| **pythagorean theorem in 3-d** |
| http://www.regentsprep.org/regents/math/geometry/gp13/Spider.gif | In the 3-dimensional figure to the left, we can use a variation on the Pythagorean Theorem to find the length of the diagonal that the spider is on.3-D Pythagorean Formula: $l^{2}+w^{2}+h^{2}=d^{2}$ (d is the length of the diagonal)$$4^{2}+2^{2}+4^{2}=d^{2}$$$$16+4+16=d^{2}$$$$36=d^{2}$$$$\sqrt{36}=d=6$$ |
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