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Before we get to the converse, let's do a quick review of the Pythagorean Theorem. Make sure to check out the full lesson on the Pythagorean Theorem if this isn't review for you. We can use the Pythagorean Theorem to find the missing side of a right triangle. If you know two of the sides of a right triangle, you can plug them in and solve to find the
missing third side.The important thing to notice here is that in order to use the Pythagorean Theorem, you have to first know for certain that the triangle has a 90 degree angle. You could reword the theorem this way: The order is very important! You can use the Pythagorean theorem only if you start out knowing that the triangle is a right triangle.
Only then can you use a-squared plus b-squared equals c-squared to find a missing side. Why does this matter? Let's see what happens if you switch the order around. If you're familiar with if-then statements, you may remember that the converse of a statement is when you switch the hypothesis and conclusion around (the parts after if and then).
Welcome to Kate's Math Lessons! Teachers: make sure to check out thestudy guides and activities. Notice that the order has been switched! In the Pythagorean Theorem, the hypothesis (the part after the "If") is that it's a right triangle with legs a and b and hypothesis c. The conclusion (the part after the "then") is that a-squared plus b-squared equals
c-squared. The converse is written in the reverse order. Notice that the order is switched around. In the original Pythagorean Theorem, you know from the start that the triangle is a right triangle and then you can use a-squared plus b-squared equals c-squared to find a missing side. In the converse, you start by knowing that a-squared plus b-squared
equals c-squared, and then you can tell that it's a right triangle. If you already know that the triangle is a right triangle, you can use the original Pythagorean Theorem to find a missing side. The converse is used the other way around. If you know all three sides of a triangle, you can use the converse of the Pythagorean Theorem to determine if the
triangle is a right triangle.When you're using the converse, you will already know all three sides of the triangle and you'll be asked if the triangle is a right triangle. If it is a right triangle, the longest side would be the hypotenuse so you'll choose the largest number for c. The smaller two numbers will be a and b, it doesn't matter which one you call a
and which one you call b. You plug all three numbers into a-squared plus b-squared equals c-squared and see if it works! If both sides of the equation come out to the same number, then you know the triangle is a right triangle. If they come out to different numbers, you know that it's not a right triangle. In this type of problem, you'll be given the
three sides of a triangle and you need to figure out if it's a right triangle. How do you know if it is a right triangle? You use the converse of the Pythagorean Theorem. Here are the steps you'll follow: Determine if the triangle below is a right triangle. This sure looks like a right triangle, but never just assume a triangle has a 90 degree angle by just
looking at it. It may have a 89 degree angle or a 91 degree angle and just look awfully close to 90 degrees. We need to use the converse of the Pythagorean Theorem to tell for sure if it has a right angle.Step 1:Determine a, b, and c. If this was a right triangle, the longest side would be the hypotenuse, so we need to use 10 for c. The two shortest sides
6 and 8 will be the values for a and b.Step 2: Plug in a, b and c. Step 3:Determine if the sides form a right triangle. Both sides of the equation simplified to 100. When both sides come out to the same number, it works! A triangle with sides 6, 8, and 10 do form a right triangle. Determine if the triangle below is a right triangle. Again, don't assume this
is a right triangle just because it looks like one. To verify if a triangle is a right triangle, we need to use the converse of the Pythagorean Theorem to make sure.Step 1:Use the longest side for c: c = 13. The two shorter sides are a and b.Step 2:Plug in the values and see if they work. Step 3:Determine if the triangle is a right triangle. The two sides of
the equation simplified to different numbers. This means the conditions of the converse were not met, so the triangle is not a right triangle. Ready to try some problems on your own? Click the START button below to take a practice quiz. Powered by What is the Converse of the Pythagorean Theorem?The Converse of the Pythagorean Theorem is a
statement that reverses the direction of the original Pythagorean Theorem.The Original Pythagorean Theorem:In a right-angled triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides. c2 = a2 + b2Converse of the Pythagorean Theorem:If the square of the length of the longest side of
a triangle is equal to the sum of the squares of the lengths of the other two sides, then the triangle is a right-angled triangle.The following figures show the how the Converse of the Pythagorean Theorem can be used to determine the type of triangle. Scroll down the page for more examples, solutions, and proofs of the Converse of the Pythagorean
Theorem.Geometry WorksheetsPractice your skills with the following geometry worksheets:Printable & Online Geometry WorksheetsThe Converse of the Pythagorean TheoremThe Pythagorean Theorem states thatIn any right triangle, the sum of the squared lengths of the two legs is equal to the squared length of the hypotenuse.In mathematical
terms: If a triangle has sides of length a, b, and c, where c is the hypotenuse, then a + b = c.The converse of the Pythagorean Theorem states thatFor any triangle with sides a, b, c, if a2 + b2 = c2, then the angle between a and b measures 90 and the triangle is a right triangle. How to use the converse to determine the type of triangleWe can also use
the converse of the Pythagorean theorem to check whether a given triangle is an acute triangle, a right triangle or an obtuse triangle.For a triangle with sides a, b and c and c is the longest side then:If c 2 < a 2 + b 2 then it is an acute triangle, i.e. the angle facing side c is an acute angle.If c 2 = a 2 + b 2 then it is a right triangle, i.e. the angle facing
side c is a right angle.If c 2 > a 2 + b 2 then it is an obtuse triangle, i.e. the angle facing side c is an obtuse angle.Example:Determine whether a triangle with sides 3 cm, 5 cm and 7 cm is an acute, right or obtuse triangle.Solution:We choose the two shorter sides to be a and b and the longest side to be c. So a = 3, b = 5 and c = 7. a 2 + b 2 = 32 + 52
= 9 + 25 = 34c2 = 72 = 49 49 > 34 c 2 > a 2 + b 2, and so the triangle is an obtuse triangle.Example:Determine whether a triangle with sides 12 cm, 14 cm and 18 cm is an acute, right or obtuse triangle.Solution:We choose the two shorter sides to be a and b and the longest side to be c. So a = 12, b = 14 and c = 18. a 2 + b 2 = 122 + 142 = 144 +
196 = 340 c2 = 182 = 324 340 < 34 c 2 < a 2 + b 2, and so the triangle is an acute triangle. Example:Determine whether a triangle with sides 8 cm, 15 cm and 17 cm is an acute, right or obtuse triangle.Solution:We choose the two shorter sides to be a and b and the longest side to be c. So a = 8, b = 15 and c = 17. a 2 + b 2 = 82 + 152 = 64 + 225 =
289 c2 = 172 = 289 289 = 289 c 2 = a 2 + b 2, and so the triangle is an right triangle. How to use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle?Triples to memorize3-4-5, 5-12-13, 8-15-17, 7-24-25Show Video LessonHow to use the Pythagorean Theorem and its Converse to determine if a triangle is acute, right,
or obtuse? Use the Pythagorean Theorem to determine if a triangle is acute, right, or obtuse. Use the triangle inequality to determine if a triangle can be formed.The triangle inequality states that in order to construct a triangle, the sum of the shorter sides must be greater than the longest side.Examples:Determine if the lengths represent the sides of
an acute, right, or obtuse triangle, if a triangle is possible.7, 24, 255, 12, 166, 8, 93, 5, 9Show Video LessonHow to Use the Converse?Identify the longest side (c).Square all three sides.Check if a + b = cIf true, the triangle is right-angled.If false, it is not a right triangle.Special case:If a + b < c then the triangle is acute.If a + b > c then the triangle is
obtuse. The Converse of the Pythagorean Theorem This video discusses the converse of the Pythagorean Theorem and how to use it verify if a triangle is a right triangle. Also, two triangle inequalities used to classify a triangle by the lengths of its sides. Both are related to the Pythagorean Theorem.Example:Determine if 13, 10 and 12 make a right
triangle.Show Video LessonHow to Use the Converse of the Pythagorean Theorem?How to determine if three given lengths of the sides of a triangle make a right triangle?This is an application of the Converse of the Pythagorean Theorem.Example:The numbers represent the lengths of the sides of a triangle. Classify each triangle as acute, obtuse, or
right.a) 15,20,25b) 10,15,20Show Video LessonConverse of Pythagorean TheoremExamples:Specify all values of x that make the statement true.a) 1 is an obtuse angel.b) The triangle is isosceles.c) No triangle is possible.Explain why x must equal 5.Explain why D must be a right angle.Explain why P must be a right angle.Show Video LessonProof of
the Converse of Pythagoras TheoremShow Video Lesson Try out our new and fun Fraction Concoction Game.Add and subtract fractions to make exciting fraction concoctions following a recipe.There are four levels of difficulty: Easy, medium, hard and insane. Practice the basicsof fraction addition and subtraction or challenge yourself with the insane
level. We welcome your feedback, comments and questions about this site or page. Please submit your feedback or enquiries via our Feedback page.Download the Testbook APP & Get Pass Pro Max FREE for 7 Days10,000+ Study NotesRealtime Doubt Support71000+ Mock TestsRankers Test Series+ more benefitsDownload App Now The converse of
Pythagoras theorem is the reverse of the Pythagoras theorem and it helps in determining if a triangle is acute, right, or obtuse if the sum of the squares of two sides of a triangle is compared to the square of its third side. The Pythagorean theorem is the most used in trigonometry. Let us learn more about the converse of the Pythagoras theorem, the
proof, and solve a few examples. What is the Converse of Pythagoras Theorem? The converse of Pythagoras theorem states that if the square of the length of the longest side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right triangle. The converse is the complete reverse of the Pythagoras theorem. The
main application of the converse of the Pythagorean theorem is that the measurements help in determining the type of triangle - right, acute, or obtuse. Once the triangle is identified, constructing that triangle becomes simple. There are three cases that occur:1. If the sum of the squares of two sides of a triangle is considered equivalent to the square
of the hypotenuse, the triangle is a right triangle.2. If the sum of the squares of two sides of a triangle is less than the square of the hypotenuse, the triangle is an obtuse triangle.3. If the sum of the squares of two sides of a triangle is greater than the square of the hypotenuse, the triangle is an acute triangle.Pythagoras TheoremThe Pythagoras
theorem states that if a triangle is right-angled (90 degrees), then the square of the hypotenuse is equal to the sum of the squares of the other two sides. In the given triangle ABC, we have BC2 = AB2 + AC2. Here, AB is the base, AC is the altitude or the height, and BC is the hypotenuse. In other words, we can say, in a right triangle, (Opposite)2 +
(Adjacent)2 = (Hypotenuse)2.Proof of Converse of Pythagoras Theorem Statement: In a triangle, if the square of one side is equal to the sum of the squares of the other two sides, then the angle opposite the first side is a right angle.Proof: Here, we are given a triangle ABC in which AC2 = AB2 + BC2. We need to prove that B = 90.To start with, we
construct a PQR right-angled at Q such that PQ = AB and QR = BC.Now, from PQR, we have:PR2 = PQ2 + QR2 (Pythagoras Theorem, as Q=90)or PR2 = AB2 + BC2 (By construction)........ (1)But AC2 = AB2 + BC2 (Given).......... (2)So, AC = PR (From (1) and (2)).............. (3)Now, in ABC and PQR,AB = PQ (By construction)BC = QR (By
construction)AC = PR (Proved in (3))So, ABC PQR (According to the SSS congruence)B = Q (Corresponding angles of congruent triangles)Q = 90 (By construction)So B = 90.Hence, the converse of the Pythagoras theorem is proved.Converse of Pythagoras Theorem Formula The converse of Pythagoras theorem formula is c2 = a2 + b2, where a, b,
and c are the sides of the triangle.Related TopicsListed below are a few topics related to the converse of the Pythagoras theorem, take a look. Example 1: The side of the triangle is of length 8 units, 10 units, and 6 units. Is this triangle a right triangle? If so, which side is the hypotenuse?Solution:We know that the hypotenuse is the longest side in a
triangle. The side or lengths is given as 8 units, 10 units, and 6 units. Therefore, 10 units is the hypotenuse.Using the converse of Pythagoras theorem, we get,(10)2 = (8)2 + (6)2100 = 64 + 36100 = 100Since both sides are equal, the triangle is a right triangle.Example 2: Check if the triangle is acute, right, or an obtuse triangle with side lengths as 6,
8, and 11 units.Solution: According to the length, we know that 11 units are the longest side.Compare the square lengths of both the sides in the equation c2 = a2 + b2.(11)2 = (6)2 + (8)2121 = 36 + 64121 = 100Hence, (11)2 > (6)2 + (8)2Therefore, according to the application of converse of Pythagoras theorem (If the sum of the squares of two sides
of a triangle is less than the square of the hypotenuse, the triangle is an obtuse triangle), the triangle is an obtuse triangle.View Answer >go to slidego to slideGreat learning in high school using simple cuesIndulging in rote learning, you are likely to forget concepts. With Cuemath, you will learn visually and be surprised by the outcomes.Book a Free
Trial ClassFAQs on Converse of Pythagoras Theorem The coverse of the Pythagoras theorem states that, in a triangle, if the square of one side is equal to the sum of the squares of the other two sides, then the angle opposite the first side is a right angle.What is the Formula for Converse of Pythagoras Theorem?The converse of Pythagoras theorem
formula is c2 = a2 + b2, where a, b, and c are the sides of the triangle.How Do You Prove the Converse of Pythagoras Theorem?The converse of the Pythagoras theorem states that if the square of the length of the longest side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right triangle. If we consider two
triangles ABC and PQR where c2 = a2 + b2 then we can say C is a right triangle.What is the Converse of the Pythagoras Theorem Useful For?The converse of the Pythagoras theorem is useful in determining if a triangle is a right triangle or not. Whereas, a Pythagorean theorem helps in determining the length of the missing side of a right
triangle.What is the Application of the Converse of Pythagoras Theorem?The application of the converse of the Pythagoras theorem is that the measurements help in determining what type of a triangle it is. There are three scenarios that we can determine, they are:If the sum of the squares of two sides of a triangle is considered equivalent to the
square of the hypotenuse, the triangle is a right triangle.If the sum of the squares of two sides of a triangle is less than the square of the hypotenuse, the triangle is an obtuse triangle.If the sum of the squares of two sides of a triangle is greater than the square of the hypotenuse, the triangle is an acute triangle.What is the Pythagorean Theorem?The
Pythagoras theorem states that if a triangle is right-angled (90 degrees), then the square of the hypotenuse is equal to the sum of the squares of the other two sides. We can say, (Opposite)2 + (Adjacent)2 = (Hypotenuse)2.Enjoy sharper detail, more accurate color, lifelike lighting, believable backgrounds, and more with our new model update. Your
generated images will be more polished thanever.See What's NewExplore how consumers want to see climate stories told today, and what that means for yourvisuals.Download Our Latest VisualGPS ReportData-backed trends. Generative AI demos. Answers to your usage rights questions. Our original video podcast covers it allnow ondemand.Watch
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trends. Generative AI demos. Answers to your usage rights questions. Our original video podcast covers it allnow ondemand.Watch NowEnjoy sharper detail, more accurate color, lifelike lighting, believable backgrounds, and more with our new model update. Your generated images will be more polished thanever.See What's NewExplore how
consumers want to see climate stories told today, and what that means for yourvisuals.Download Our Latest VisualGPS ReportData-backed trends. Generative AI demos. Answers to your usage rights questions. Our original video podcast covers it allnow ondemand.Watch Now Pythagorean Theorem Calculator helps to find the unknown side length of a
right-angled triangle when two side lengths are known. The Pythagorean Theorem gives the relation among the three sides of a right triangle and hence, is one of the most fundamental concepts of Geometry. What is the Pythagorean Theorem Calculator? Pythagorean Theorem Calculator is an online tool to determine any side of a right-angled
triangle when the other two sides are given. Pythagorean Theorem sees use in several sister subjects such as Trigonometry. To use the Pythagorean Theorem calculator choose the side to be computed from the drop-down menu and enter the values in the input boxes. Pythagorean Theorem Calculator What is Pythagorean Theorem? In a right-angled
triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides. The hypotenuse is the side of the triangle opposite to the right angle. Furthermore, the length of the hypotenuse is greater than the length of the altitude and the length of the base. However, the length of the hypotenuse will be lesser than the sum of
lengths of the remaining two sides. The Pythagorean Theorem is used in the field of architecture to ensure that the structures created are strong and robust. In the given \(\Delta ABC \), \[\begin{align} \text{BC}^2 &= \text{AB}^2 +\text{AC}^2 \end{align}\] where, \(\text{AB}\) is the base, \(\text{AC}\) is the altitude or the height, and \(
\text{BC}\) is the hypotenuse. To calculate the hypotenuse we simply plug in the values into the above equation. However, if we want to find the value of the base or the altitude we have to follow the steps given below. Suppose we need to determine the value of the altitude. We have to shift the base (AB2) to the left-hand side of the equation. We then
subtract the base from the hypotenuse (BC2 - AB2). We now have to take the square root of this value to get the length of the altitude. The same steps can be used if we have to find the length of the base. How to Use the Pythagorean Theorem Calculator? Follow these steps which will help you to use the calculator. Step 1: Select the side of the right-angled triangle to be calculated, from the drop-down list. Step 2: Enter the value for the other two sides in the corresponding input boxes. Step 3: Click on "Calculate" to find the unknown side of the triangle. Step 4: Click on "Reset" to clear the fields and enter the new values. Want to find complex math solutions within seconds? Use our free online
calculator to solve challenging questions. With Cuemath, find solutions in simple and easy steps. Book a Free Trial Class Solved Examples on Pythagorean Theorem Calculator Example 1: A right-angled triangle ABC, has base BC = 12 units, height AB = 5 units. What is the length of AC? Solution: By Pythagoras theorem we know that, AB2 + BC2 =
AC2 AC2 = 52 + 122 AC = (52 + 122) = (52 + 122) AC = 13 units. Answer: The length of AC is 13 units. Example 2: A right-angled triangle PQR, has angle Q = 90. PQ = 8 units. PR = 10 units. Find QR. Solution: By Pythagoras Theorem we know that, PR2= PQ2 + QR2 102 = 82 + QR2 QR2 = 102 - 82 QR = (102 - 82) = (102 - 82) QR = 6 units.
Answer: The length of QR is 6 units. Similarly, you can use the Pythagorean Calculator calculator to find the hypotenuse of right-angled triangles with: Side a = 6 units and side b = 8 units. Side a = 12 units and side b = 5 units. Side a = 3 units and side b = 4 units. Related Articles: Pythagoras Theorem Right Angled Triangle Math Calculators:
Identify right triangles using the theorem Figure \(\PageIndex{1}\) Brandon has just purchased his first home and is very anxious to plant a flower garden in a triangular section of the backyard. Brandon has inherited a metal fence that his grandfather had made many years ago and he would like to use it in his garden. The fence consists of two pieces
that are welded together to form a right angle and another long straight piece. He knows that the pieces of fence will fit in the garden if his triangular garden is a right triangle. If only I could use the garden measurements of 29 feet, 20 feet and 29 feet to figure out if my garden space forms a right triangle, then I could use Grandpas fence. he thought
to himself. In this concept, you will learn to derive and use the converse of the Pythagorean Theorem. The Pythagorean Theorem states that for a right triangle the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides. This theorem can be modeled by the equation \(c^2=a^2+b^2\) where \(c\)
represents the length of the hypotenuse, a represents the length of one leg and b represents the length of the other leg. The Pythagorean Theorem can be used to calculate the length of an unknown side of a right triangle. The Converse of the Pythagorean Theorem states that if the square of the length of one side of a triangle is equal to the sum of
the squares of the lengths of the other two sides, then the angle opposite the longest side is a right angle. A triangle that contains a right angle is a right triangle. Lets look at the converse of the Pythagorean Theorem in action. Determine whether or not the following triangles (which may not be drawn to scale) are right triangles. If the triangle is a
right triangle, make any necessary changes to the triangle and draw it correctly. Figure \(\PageIndex{2}\) Lets begin with Triangle One. First, determine the longest side of the triangle. The lengths of the sides are 2, 3 and \(\sqrt{5}\). The length of side \(BC\) is \(\sqrt{5}\approx 2.24 \text{ units}\). The longest side of the triangle is \(AB\) which will
be the hypotenuse of the triangle if \(\Delta ABC\) is a right triangle. Next, substitute the values \((2,\sqrt{5},3)\) for \((a,b,c) \)respectively into the equation c^2=a^2+b^2. c^2&=a^2+b^2 \\ (3)^2&=(2)^2+(\sqrt{5})^2 Next, square each of the terms indicated in the equation. \(\begin{aligned} (3)^2&=(2)^2+(\sqrt{5})^2 \\ (3\times 3)&=(2
\times 2)+(\sqrt{5}\times \sqrt{5})\end{aligned}\) Next, evaluate each of the squares. \(\begin{aligned} (3\times 3)&=(2\times 2)+(\sqrt{5} \times \sqrt{5}) \\ 9&=4+5 \end{aligned}\) Then, simplify the right side of the equation by adding the numbers. \(\begin{aligned} 9&=4+5 \\ 9&=9 \end{aligned}\) Both sides of the equation are equal. The
square of the length of one side of the triangle is equal to the sum of the squares of the lengths of the other two sides. Triangle One is a right triangle. The length of \(BC\) should be 3 and the length of \(AB\) should be \(\sqrt{5}\) since the right angle is located at \(C\). Lets look at Triangle Two. First, determine the longest side of the triangle. The
lengths of the sides are \(\sqrt{2}\), \(\sqrt{3}\) and 5. The length of side \(AC\) is \(\sqrt{2}\), approximately 1.41 units in length. The length of side BC is \(\sqrt{3}\), approximately 1.73 units in length. The longest side of the triangle is AB which will be the hypotenuse of the triangle if \(\Delta ABC\) is a right triangle. Next, substitute the values \((\sqrt{2},\sqrt{3},5)\) for \((a,b,c)\) respectively into the equation \(c^2=a^2+b^2\). \(\begin{aligned} c^2&=a^2+b^2 \\ (5)2&=(\sqrt{2})^2+(\sqrt{3})^2\end{aligned}\) Next, square each of the terms indicated in the equation. \(\begin{aligned} (5)^2&=(\sqrt{2})^2+(\sqrt{3})^2 \\ (5\times 5)&=(\sqrt{2}\times \sqrt{2})+(\sqrt{3}\times
\sqrt{3})\end{aligned}\) Next, evaluate each of the squares. \(\begin{aligned} (5\times 5)&=(\sqrt{2}\times \sqrt{2})+(\sqrt{3}\times \sqrt{3}) \\ 25&=2+3 \end{aligned}\) Then, simplify the right side of the equation by adding the numbers. \(\begin{aligned}25&=2+3 \\ 25&eq 5\end{aligned}\) Both sides of the equation are not equal. The square
of the length of one side of the triangle is NOT equal to the sum of the squares of the lengths of the other two sides. Triangle Two is not a right triangle. Earlier, you were given a problem about Brandons flower garden and his metal fence. He needs to figure out if his garden space is a right triangle. How can Brandon figure this out using the
measurements of the space? Solution First, determine the values for (a,b,c) of a right triangle using the measurements of 29, 20 and 21 feet. The longest side will represent \(c\) the hypotenuse. \(\begin{aligned} a&=20 \\ b&=21 \\ c&=29 \end{aligned}\) Next, substitute the given values into the Pythagorean Theorem. \(\begin{aligned}
c^2&=a^2+b^2 \\ (29)^2=(20)^2+(21)^2\end{aligned}\) Next, square each of the terms indicated in the equation. \(\begin{aligned} (29)^2&=(20)^2+(21)^2 \\ (29\times 29)&=(20\times 20)+(21\times 21) \end{aligned}\) Next, evaluate each of the squares and simplify the equation. \(\begin{aligned} (29\times 29)&=(20\times 20)+(21\times 21) \\
841&=400+441 \\ 841&=841\end{aligned}\) The square of the length of one side of the triangle is equal to the sum of the squares of the lengths of the other two sides. The garden is a right triangle. Brandon can use his Grandpas fence for his flower garden. Are the set of numbers (5, 8, 10) the lengths of the sides of a right triangle? Solution First,
determine the values for each side of the right triangle. The length of the longest side will represent c, the hypotenuse. The other two lengths will represent the lengths of the legs a and b. \(\begin{aligned} a&=5 \\ b&=8 \\ c&=10 \end{aligned}\) Next, substitute the given values into the Pythagorean Theorem. \(\begin{aligned} c^2&=a^2+b^2 \\
(10)^2&=(5)^2+(8)^2 \end{aligned}\) Next, square each of the terms indicated in the equation. \(\begin{aligned} (10)^2&=(5)^2+(8)^2 \\ (10\times 10)&=(5\times 5)+(8\times 8) \end{aligned}\) Next, evaluate each of the squares. \(\begin{aligned} (10\times 10)&=(5\times 5)+(8\times 8) \\ 100&=25+64 \end{aligned}\) Then, simplify the right
side of the equation by adding the numbers. \(\begin{aligned} 100&=25+64 \\ 100&eq 89\end{aligned}\) Both sides of the equation are not equal. The square of the length of one side of the triangle is NOT equal to the sum of the squares of the lengths of the other two sides. The set of numbers (5, 8, 10) are not the lengths of the sides of a right
triangle. Is the following triangle (which may or may not be drawn to scale) a right triangle? Figure \(\PageIndex{3}\) Solution First, determine the values for (a,b,c) of a right triangle. The longest side will represent c the hypotenuse. \(\begin{aligned} a&=8 \\ b&=9 \\ c&=12 \end{aligned}\) Next, substitute the given values into the Pythagorean
Theorem. \(\begin{aligned} c^2&=a^2+b^2 \\ (12)^2&=(8)^2+(9)^2 \end{aligned}\) Next, square each of the terms indicated in the equation. \(\begin{aligned} (12)^2&=(8)^2+(9)^2 \\ (12\times 12)&=(8\times 8)+(9\times 9) \end{aligned}\) Next, evaluate each of the squares. \(\begin{aligned} (12\times 12)&=(8\times 8)+(9\times 9) \\
144&=64+81 \end{aligned}\) Then, simplify the right side of the equation by adding the numbers. \(\begin{aligned}144&=64+81 \\ 144 &eq 145\end{aligned} \) Both sides of the equation are not equal. The square of the length of one side of the triangle is NOT equal to the sum of the squares of the lengths of the other two sides. The triangle is not
a right triangle. Is the following triangle (which may or may not be drawn to scale) a right triangle? Figure \(\PageIndex{4}\) Solution First, determine the values for (a,b,c) of a right triangle. The longest side will represent c the hypotenuse. \(\begin{aligned}\sqrt{7}&\approx 2.65\\ a&=3 \\ b&=\sqrt{7} \\ c&=4\end{aligned}\) Next, substitute the
given values into the Pythagorean Theorem. \(\begin{aligned} c^2&=a^2+b^2 \\ (4)^2&=(3)^2+(\sqrt{7})^2 \end{aligned}\) Next, square each of the terms indicated in the equation. \(\begin{aligned} (4)^2&=(3)^2+(\sqrt{7})^2 \\ (4\times 4)&=(3\times 3)+(\sqrt{7}\times \sqrt{7}) \end{aligned}\) Next, evaluate each of the squares. \(\begin{aligned} (4\times 4)=(3\times 3)+(\sqrt{7}\times \sqrt{7}) \\ 16&=9+7\end{aligned}\) Then, simplify the right side of the equation by adding the numbers. \(\begin{aligned} 16&=9+7 \\ 16&=16 \end{aligned}\) Both sides of the equation are equal. The square of the length of one side of the triangle is equal to the sum of the squares of the
lengths of the other two sides. The triangle is a right triangle. Think about what you have learned about the Pythagorean Theorem and answer true or false for the following questions. 1. The Pythagorean Theorem will work for an acute triangle with all 60 angles. 2. The Pythagorean Theorem will work for a right triangle. 3. The Pythagorean Theorem
will only work if the triangle is a right triangle. 4. The legs of a right triangle are considered the two shorter sides of the right triangle. 5. The hypotenuse is the longest side of a right triangle. 6. The converse of the Pythagorean Theorem is used to find the angle measures of an obtuse triangle. 7. A Pythagorean Triple is when you multiply all of the
angle measures by three. 8. You can use the Pythagorean Theorem to figure out if the side lengths of a triangle make it a right triangle or not. Identify whether or not each of the following values is a Pythagorean Triple. Write yes or no for your answer. 9. (4, 5, 6) 10. (6, 8, 10) 11. (5, 6, 9) 12. (9, 12, 15) 13. (30, 40, 55) 14. (21, 28, 35) 15. (12, 16, 20).
To see the Review answers, open this PDF file and look for section 7.7. In todays geometry lesson, youre going to learn how to use the converse of the Pythagorean theorem.Jenn, Founder Calcworkshop, 15+ Years Experience (Licensed & Certified Teacher)More specifically, youre going to use it to classify triangles and determine missing side
lengths.Lets jump in!The Pythagorean theorem is one of the most famous equations, as it helps us to relate the angle and sides of a right triangle. And as we know, a right triangle is comprised of two legs and a hypotenuse. The hypotenuse is the longest side and is always opposite to the right angle.Right Triangle Diagram So when we solve right
triangles for the missing side length, all we do is plug our given values into the formula and solve the corresponding equation.Formula for Using the Pythagorean TheoremPythagorean Theorem Example But did you know that we can determine whether or not a triangle is a right triangle, acute triangle, or obtuse triangle?Its true!Just by examining its
side lengths and using the converse Pythagorean theorem! What is the Converse of the Pythagorean Theorem? The theorem states that if the square of the length of the longest side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right triangle. And the corollary states, if a triangle with side lengths a, b, and
c where c is the length of the longest side, we can determine if the triangle is acute or obtuse. We do this by comparing the sum of the squares of the legs is less than or greater than the square of the largest side, as Varsity Tutors accurately states.Converse of Pythagorean Theorem FormulaDetermine if its Right, Acute, or Obtuse In the video below,
you are going to review the Pythagorean theorem and its properties, and then use the converse of the Pythagorean theorem to determine if a triangle is a right triangle, acute triangle, or obtuse triangle. In addition, youll learn a very important rule for setting up the converse equations. (Hint: Order Matters)Video Lesson & Examples 28 min 00:06:47
Classify the triangle as Right, Acute, or Obtuse (Examples #3-7)00:17:38 Use the Pythagorean theorem to find the missing length of the polygon (Examples #8-11)Practice Problems with Step-by-Step Solutions Chapter Tests with Video Solutions Get access to all the courses and over 450 HD videos with your subscriptionMonthly and Yearly Plans
AvailableGet My Subscription NowStill wondering if CalcWorkshop is right for you?Take a Tour and find out how a membership can take the struggle out of learning math. Share copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt remix, transform, and build upon the material for any purpose, even
commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike If you remix,
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public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Written By Livia Ferrao Last Modified 19-10-2022
Pythagoras Theorem Formula: Pythagorean theorem is another name for it. illustrates how the sides of a right-angled triangle are related. Pythagorean triples refer to the sides of a right triangle. The Pythagoras theorem can be used in a variety of situations, including trigonometry and other mathematical ideas. This theorem makes everything so
simple that no one can help but fall in love with it. So, let us learn about the Pythagorean theorem and the Pythagorean theorem equations origins. In this article with illustrations, the Pythagoras formula and proof of this theorem are explained. The Pythagoras theorem is a formula for calculating the length of an unknown side and the angle of a
triangle. We can derive the base, perpendicular, and hypotenuse formulas using this theorem. Lets take a closer look at the Pythagorean theorem equations using Pythagorean theorem examples. The Pythagorean theorem takes its name from the ancient Greek mathematician Pythagoras. He perhaps was the first one to proving Pythagorean theorem.
But this special relationship between the sides of a right-angled triangle was probably known long before Pythagoras. Ancient Babylonian master builders used the Pythagoras theorem in construction though it wasntreally called the Pythagorean equation theorem, its principles were used. How do we know that? Some ancient clay tablets from
Babylonia indicate that the Babylonians in the second millennium B.C., 1000 years before Pythagoras, had rules for generating Pythagorean triples. They understood the relationship between the sides of a right-angled triangle. They could even solvehypotenuse of an isosceles right-angled triangle, in which they would come up with an approximationof
the final value up to five decimal places. They did this because the lengths would often represent some multiple of the formula: 1^2 + 1^2 = (sqrt of two)^2. Indian mathematicians in the ancient times knew the Pythagorean theorem, they also used something called the Sulbasutras (of which the earliest date from (ceremonial axe)ca. 800-600 B.C.)
that discuss the theorem in the context of strict requirements for the orientation, shape, and area of altars for religious purposes. The ancient Mayas used variations of Pythagorean triples in their Long Count calendar. Apart from India, the Chinese and the Egyptians also used this theorem in construction. This is how many of the Egyptianpyramids
are built. The Egyptians wanted a perfect 90-degree angle to build the pyramids which were actually two right-angle triangles whose hypotenuse forms the edges of the pyramids. There are some clues that the Chinese had also developed the Pythagoras theorem using the areas of the sides long before Pythagoras himself. But they did not actually
write them down and so Pythagoras gets the credit for simply writing them down. Pythagoras was born around 5000 BC, on an island called Samos in Greece. There is not much information about his youth though he did a lot of travelling to study is all thatis known. Latter Pythagorassettled in Crotone(a city and comune in Calabria), where he started
his cult or group called thePythagoreans. ThePythagoreans loved maths so muchthat it was like a god to them, they pretty much-worshipped maths. They believed that numbers ruled the universe with their mystical and spiritual qualities. Now, whether it was really Pythagoras or another person among the Pythagoreans who discoveredthe theorem is
unknownsince it isnt recorded in any of their writings. But when this theorem was discovered and proved the Pythagoreansacrificed the huge number of bulls to their number of gods. Well, they were quite serious about maths Here are some of the frequently asked questions (FAQs) on the origin of Pythagoras Theorem: Q1: Is Pythagoras theorem only
used for right triangles?Ans: Pythagorastheorem onlyworks forright-angledtriangles, so you can use it to test whether atrianglehas arightangle or not. Q2: Did Indian Mathematicians use Pythagoras theorem in ancient India?Ans: Indian mathematicians in the ancient times knew the Pythagorean theorem, they also used something called the
Sulbasutras that discuss the theorem in the context of strict requirements for the orientation, shape, and area of altars for religious purposes. The ancient Mayas used variations of Pythagorean triples in their Long Count calendar. Q3: When and where was the Pythagoras born?Ans: Pythagoras was born around 5000 BC, on an island called Samos in
Greece. Q4: From where does the Pythagoras Theorem derive its name?Ans: The Pythagorean theorem takes its name from the ancient Greek mathematician Pythagoras. He perhaps was the first one to offer proof of the theorem. Q5 Where did the Pythagoras theorem originate from?Ans: The Pythagorean theorem first originated in ancient Babylon
and Egypt (beginning about 1900 B.C.). Some ancient clay tablets from Babylonia indicate that the Babylonians in the second millennium B.C., 1000 years before Pythagoras, had rules for generating Pythagorean triples. They understood the relationship between the sides of a right-angled triangle. It sure is amazing to know such a story behind such a
simple proof of Pythagoras theorem. To know more about such amazing stories stay with us on Embibe. We not only make education fun but also help you score higher in your exams. So dont forget to practice and take tests on Embibe, absolutely! We hope you find the article on the Origins of Pythagoras theorem helpful. If you have any doubt
regarding this article, kindly drop your comments below and we will get back to you at the earliest. The Pythagoras theorem is an important theorem used in geometry that shows the relationship between the lengths of the sides of a right-angled triangle. It is named after the famous Greek mathematician Pythagoras and is also known as the
Pythagorean theorem.The Pythagoras theorem holds great significance in geometry and forms the base for solving various mathematical problems. It finds many real-life applications in the field of construction, navigation, surveying, architecture, etc.What is Pythagoras Theorem?The Pythagoras theorem states that the sum of the square of the two
sides of a right-angle triangle is equal to the square of the third side called the hypotenuse. The equation formed as per the Pythagoras theorem is a + b = c, where a, b and c are the sides of a right triangle. The ability to find the length of a side when the other two sides length is given makes the Pythagorean Theorem a beneficial construction and
navigation technique.Here are 5 real-life applications of the Pythagorean Theorem1. ArchitectureThe Pythagorean Theorem is applicable to calculate the length of the diagonal connecting any two straight lines. This aspect of the Pythagorean theorem is pretty useful in designing and construction. For instance, while building a sloped roof, if you know
the height and the length of the roof to cover, you can use the Pythagorean Theorem to find the diagonal length or to calculate the roofs slope. You can utilize this data to precisely cut beams to support the roof structure or to calculate the roofs total area.2. Painting WallsPainters also make use of the Pythagoras theorem to paint buildings. They need
to evaluate the ladder height and distance from the wall to complete the work without an accident. In this case, the ladder is the hypotenuse in terms of the theorem.3. NavigationThe Pythagorean theorem is useful in two-dimensional navigation, mostly used by ships to find the shortest routes. Sailors navigate using this theorem by making a
horizontal and a vertical line from the current location to form a right angled triangle in order to find the shortest distance to the destination. The distances in each direction will be the two sides of the triangle, and the shortest line connecting them will be diagonal. The same law applies to other forms of navigation on land or the sky. For instance, a
flight can use its altitude above sea level and its distance from the destination airport to find the exact geolocation to begin a safe descent to that airport.4. Building Square & AnglesRight angles and square shapes are quite common in building designs and construction work. Engineers use the basic property of the Pythagoras theorem, which states
that if the sides satisfy the theorem condition, the triangle will always form a right angle. While laying out the building foundation or constructing a right-angled corner between two walls, engineers set out a triangle from three strings that correspond with sides lengths satisfying the theorem.5. SurveyingThe Pythagorean Theorem is used to calculate
many aspects of the terrain that otherwise are hard to assess, such as the steepness of slopes of mountains. A surveyor uses a telescope and a measuring stick at a fixed distance away, so when the telescopes line of sight and the measuring stick create a right angle, a triangle is formed. Since the surveyor has the information about the two sides of the
triangle that are the height of the measuring stick and the horizontal distance of the stick from the telescope, he calculates the steepness of the hill by using the theorem to find the length of the slope that covers that distance.ConclusionThe Pythagorean theorem is foundational in various branches of mathematics, physics, geology, architecture, and
more. There are numerous interactive activities for kids to reinforce the Pythagoras theorems understanding, like maths games, puzzles, and worksheets.Cuemath offers excellent learning resources for kids to gain a clear understanding of various concepts and their applications in our everyday life. Cuemath live online classes are designed to
promote the real-life application of maths for kids to learn interestingly.Watch this space for updates in the Hacks category onRunning Wolfs Rant.Like what you just read? Subscribe To Our Newsletter to stay in the loop. Feel free to explore our website, check out our Featured Articles or scroll down to see the articles that are related to this article
below. We've been around since 2008, so there's plenty of content. Looking for a gift for that special person in your life? Check out Netflorist.co.za, South Africa's top online florist and gift service. They offer flowers, gifts, and hampers for all occasions AND reliable nationwide delivery. We assume you're familiar with the Pythagorean Theorem. The
converse of the Pythagorean Theorem is: If the square of the length of the longest side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right triangle. That is, inABC, if c2=a2+b2 thenC is a right triangle,PQR being the right angle. We can prove this by contradiction. Let us assume that c2=a2+b2 in ABC and
the triangle is not a right triangle. Now consider another trianglePQR. We constructPQR so thatPR=a, QR=b and R is a right angle. By the Pythagorean Theorem, (PQ)2=a2+b2 . But we know that a2+b2=c2 and a2+b2=c2 and c=AB. So, (PQ)2=a2+b2=(AB)2 . That is, (PQ)2=(AB)2 . Since PQ and AB are lengths of sides, we can take positive square
roots. PQ=AB That is, all the three sides of PQR are congruent to the three sides of ABC. So, the two triangles are congruent by the Side-Side-Side Congruence Property. Since ABC is congruent to PQR and PQR is a right triangle, ABC must also be a right triangle. This is a contradiction. Therefore, our assumption must be wrong.Example 1:Check
whether a triangle with side lengths 6 cm, 10 cm, and 8 cm is a right triangle. Check whether the square of the length of the longest side is the sum of the squares of the other two sides. (10)2=?(8)2+(6)2100=?64+36100=100Apply the converse of Pythagorean Theorem. Since the square of the length of the longest side is the sum of the squares of
the other two sides, by the converse of the Pythagorean Theorem, the triangle is a right triangle. A corollary to the theorem categorizes triangles in to acute, right, or obtuse. In a triangle with side lengths a, b, and c where c is the length of the longest side, if c2a2+b2 then the triangle is obtuse. Example 2:Check whether the triangle with the side
lengths 5, 7, and 9 units is an acute, right, or obtuse triangle. The longest side of the triangle has a length of 9 units. Compare the square of the length of the longest side and the sum of squares of the other two sides. Square of the length of the longest side is 92=81 sq. units.Sum of the squares of the other two sides is52+72=25+49=74sq.units That
is, 92>52+72 .Therefore, by the corollary to the converse of Pythagorean Theorem, the triangle is an obtuse triangle. ,the free encyclopedia that anyone can edit.110,331 active editors 7,023,734 articles in EnglishIgor Judge, Baron Judge, a British judgeNominative determinism is the hypothesis that people are drawn to professions that fit their name.
The term was first used in the magazine New Scientist in 1994, after its humorous Feedback column mentioned a book on polar explorations by Daniel Snowman and an article on urology by researchers named Splatt and Weedon. The hypothesis had been suggested by psychologist Carl Jung, citing as an example Sigmund Freud (German for 'joy'),
who studied pleasure. A few recent empirical studies have indicated that certain professions are disproportionately represented by people with appropriate surnames, though the methods of these studies have been challenged. One explanation for nominative determinism is the theory of implicit egotism, which states that humans have an unconscious
preference for things they associate with themselves. An alternative explanation is genetic: an ancestor might have been named Smith or Taylor according to their occupation, and the genes they passed down might correlate to aptitudes for those professions. (Fullarticle...)Recently featured: Donkey Kong LandHistory of education in Wales
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resigned the Japanese throne in favor of a relative, shaved her head, became a Buddhist nun, and forced her way back into power?... that modernist architect Paul Rudolph was said to have run out of money three times while designing the Modulightor Building?... that Sayuti Abubakar was nominated to become the vice governor of Aceh by an
imprisoned former governor?... that Google Street View in Antarctica started as a "challenge"?ArchiveStart a new articleNominate an articleTrifid and Lagoon nebulaeThe Vera C. Rubin Observatory in Chile releases the first light images (example shown) from its new 8.4-metre (28ft) telescope.In basketball, the Oklahoma City Thunder defeat the
Indiana Pacers to win the NBA Finals.An attack on a Greek Orthodox church in Damascus, Syria, kills at least 25 people.The United States conducts military strikes on three nuclear facilities in Iran.In rugby union, the Crusaders defeat the Chiefs to win the Super Rugby Pacific final.Ongoing: Gaza warIranIsrael warRussian invasion of
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pontificate.1800 War of the Second Coalition: French forces won a victory at the Battle of Neuburg, ending Austrian control over the River Danube.1905 First Russian Revolution: The crew of the Russian battleship Potemkin began a mutiny against their officers.1950 Korean War: Five North Korean aircraft attacked an American air convoy above
Suwon Air Base in the first air engagement of the Korean War.2015 Ignition of corn starch caused a dust fire at a water park in New Taipei City, Taiwan, killing 12 people and injuring more than 400 others.Wilhelmina FitzClarence, Countess of Munster (b.1830)Frank Rattray Lillie (b.1870)Harry Pollitt (d.1960)Nico Rosberg (b.1985)More
anniversaries: June 26June 27June 28ArchiveBy emailList of days of the yearAbout2024 variant of the Men's T20 World Cup logoThe ICC Men's T20 World Cup, formerly the ICC World Twenty20, is a biennial world cup for cricket in the Twenty20 International (T20I) format, organised by the International Cricket Council (ICC). It was held in every odd
year from 2007 to 2009, and since 2010 has been held in every even year with the exception of 2018 and 2020. In 2018, the tournament was rebranded from the World Twenty20 to the Men's T20 World Cup. As of the 2024 tournament, twenty-four nations have played in the T20 World Cup. Nine teams have competed in every tournament, six of which
have won the title. The West Indies, England and India have won the title twice each, while Pakistan, Sri Lanka and Australia have won the title once each. Sri Lanka, England, Pakistan and India have each made three final appearances, while Pakistan have also made six semi-final appearances. The best result by a non-Test playing nation is the
second round appearance by the United States in 2024, while the worst result by a Test playing nation is the second round appearance by Zimbabwe in 2022. (Fulllist...)Recently featured: Michelin-starred restaurants in TurkeyTimeline of PartygateSongs by Gen HoshinoArchiveMore featured listsWhitehead's trogon (Harpactes whiteheadi) is a
species of bird in the family Trogonidae. It is endemic to the island of Borneo, where it is an uncommon resident in primary mountain forest. One of Borneo's largest trogons, at 29 to 33 centimetres (11 to 13 inches) long, it is sexually dimorphic. The male is crimson on the head, nape, and underparts, with a black throat and grey chest; the rest of its
upperparts are cinnamon-coloured. The female is similarly patterned, but cinnamon-brown where the male is scarlet. The species is primarily an insectivore, but also eats various plant materials, including fruits and seeds. Other than the timing of its breeding, typically between April and June, little is known about its breeding biology. It is classified as
a near-threatened species, with population numbers thought to be declining and habitat loss a key threat. This male Whitehead's trogon was photographed perching on a branch near Mount Kinabalu in the Malaysian state of Sabah.Photograph credit: John HarrisonRecently featured: AtacamiteTurban Head eagleSpringbokArchiveMore featured
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Argentine TV program, see 6, 7, 8.Calendar yearYearsMillennium1stmillenniumCenturies6thcentury7thcentury 8thcenturyDecades650s660s670s 680s690sYears675676677678 679680681vte678 by topicLeadersPolitical entitiesState leadersReligious leadersCategoriesBirthsDeathsEstablishmentsvte678 in various calendarsGregorian
calendar678DCLXXVIIIAb urbe condita1431Armenian calendar127 Assyrian calendar5428Balinese saka calendar599600Bengali calendar8485Berber calendar1628Buddhist calendar1222Burmese calendar40Byzantine calendar61866187Chinese calendar (FireOx)3375 or 3168to (EarthTiger)3376 or 3169Coptic calendar394395Discordian
calendar1844Ethiopian calendar670671Hebrew calendar44384439Hindu calendars- Vikram Samvat734735- Shaka Samvat599600- Kali Yuga37783779Holocene calendar10678Iranian calendar5657Islamic calendar5859Japanese calendarHakuchi 29()Javanese calendar570571Julian calendar678DCLXXVIIIKorean calendar3011Minguo calendar1234
before ROC1234Nanakshahi calendar790Seleucid era989/990 AGThai solar calendar12201221Tibetan calendar(female Fire-Ox)804 or 423 or 349to(male Earth-Tiger)805 or 424 or 348Pope Agatho I (678681)Year 678 (DCLXXVIII) was a common year starting on Friday of the Julian calendar. The denomination 678 for this year has been used since the
early medieval period, when the Anno Domini calendar era became the prevalent method in Europe for naming years.July 27 The Siege of Thessalonica (676678) ends, when the Sclaveni withdraw.Autumn Siege of Constantinople: Emperor Constantine IV confronts the Arab besiegers in a head-on engagement. The Byzantine fleet, equipped with Greek
fire, destroys the Muslim fleet at Sillyon,[1][2][3][4] ending the Arab threat to Europe, and forcing Yazid (a son of caliph Muawiyah I) to lift the siege on land and sea. The victory also frees up forces that are sent to raise the two-year siege of Thessalonica by the local Slavic tribes.King thelred of Mercia defeats the Northumbrian forces under King

Ecgfrith, in a battle near the River Trent. Archbishop Theodore helps to resolve differences between the two, thelred agreeing to pay a weregild to avoid any resumption of hostilities (approximate date).April 27 Emperor Tenmu holds divination for the purpose of proceeding to the Abstinence Palace.May 3 Princess Tchi suddenly takes ill and dies within the palace. Tenmu, her father, is unable to sacrifice to the Gods of Heaven and Earth.May 10 Tchi is buried at a place which could be Ak (Hygo Prefecture). Tenmu is graciously pleased to raise lament for her.Wilfrid, bishop of York, is at the height of his power and owns vast estates throughout Northumbria. After his refusal to agree to a division of his see, Ecgfrith and Theodore, archbishop of Canterbury, have him banished from Northumbria.April 11 Pope Donus dies at Rome, after a reign of 1 year and 160 days. He is succeeded by Agatho I, who becomes the 79th pope. He is the first pope to stop paying tribute to Emperor Constantine IV upon election.In Japan, the national worshiping to the Gods of Heaven and Earth is planned. Tenmu tries to select his daughter Tchi as a Sai to make her serve the Gods. However, Tchi suddenly takes ill and dies.The Beomeosa temple complex in Geumjeong-gu (modern South Korea) is constructed, during the reign of King Munmu of Silla.Childebert III, Merovingian Frankish king and son of Theuderic IIIChildebrand I, duke of Burgundy (d. 751)Kinich Ahkal Mo Nahb III, Maya ruler of PalenqueApril 11 Pope DonusMay 3 Tchi, Japanese princessAbdullah ibn Aamir, Arab general (b. 626)Ifwine, king of Deira (approximate date)Aisha, wife of MuhammadArbogast, bishop of StrasbourgNathalan, Scottish bishopWechtar, Lombard duke of FriuliZhang Wenguan, chancellor of the Tang dynasty (b. 606)^ Haldon 1990, p.64.^ Lilie 1976, pp.7879.^ Treadgold 1997, pp.326327.^ Mango & Scott 1997, p.494.Haldon, John F. (1990). Byzantium in the Seventh Century: The Transformation of a Culture (revisended.). Cambridge University Press. ISBN978-0-521-31917-1.Lilie, Ralph-Johannes (1976). Die byzantinische Reaktion auf die Ausbreitung der Araber. Studien zur Strukturwandlung des byzantinischen Staates im 7. und 8. Jhd [Byzantine Reaction to the Expansion of the Arabs. Studies on the Structural Change of the Byzantine State in the 7th and 8th Cent.] (in German). Munich: Institut fr Byzantinistik und Neugriechische Philologie der Universitt Mnchen. OCLC797598069.Mango, Cyril; Scott, Roger (1997). The Chronicle of Theophanes Confessor. Byzantine and Near Eastern History, AD 284813. Oxford University Press. ISBN0-19-822568-7.Treadgold, Warren (1997). A History of the Byzantine State and Society. Stanford, California: Stanford University Press. ISBN0-8047-2630-2.Retrieved from " 32009 Argentine TV series or program6, 7, 8First logoAlso known asThe Critique to Real PowerGenreArchive television programPresented byOrlando BaroneCarlos BarragnJorge DorioCynthia GarcaEduardo Massa AlcntaraMariana MoyanoDante PalmaSandra RussoNora VeirasCountry of originArgentinaOriginal languageSpanishNo. of seasons7ProductionExecutive producerDiego GvirtzProducerPensado Para TelevisinOriginal releaseNetworkTelevisin Pblica ArgentinaReleaseMarch 9, 2009 (2009-03-09)23 December 2015 (2015-12-23)Six in the Seven at Eight, usually called 6, 7, 8, was an Argentine political commentary TV program broadcast by the government-run Channel 7 since 2009. Its name comes from the fact that, when it first started airing, there were five members on the show's panel, and its motto was you are the sixth one (the viewer). Since it was broadcast by Channel 7 at 8 p.m., the name was shortened to "6, 7, 8". In late 2009, the program was moved to 9 p.m., a new segment was added to be aired on Sundays at night, and new guest panelists were invited, making it more than six members.[1] Nevertheless, the show's name remained unchanged.It was first hosted by Mara Julia Olivn and a panel which included Orlando Barone, Carla Czudnowsky, Eduardo Cabito Massa Alcntara, Luciano Galende and Sandra Russo, along with a guest analyst who would give their opinions throughout the program. Mara Julia Olivn announced in an interview for web site Television.com.ar that, on January 28, 2010, should make her last appearance on the program.[2] Her place was occupied by Luciano Galende, and from 2013 onward the host has been Carlos Barragn.The program was nominated to the 2010 Martn Fierro Awards in the category Best Journalistic Program.The program's panel discussed national and world events and analyzed their social and political repercussions on Argentina. The program has come under criticism due to its perceived advocacy of Kirchnerism, which is controversial since it is aired by a state-owned TV channel during the time when Cristina Kirchner was president. The program ceased to be aired shortly after the end of the presidency of Cristina Kirchner.6, 7, 8 was first aired on March 9, 2009. The initial name was "6 in the 7 at 8", making reference to the 6 people in the program, the channel Televisin Pblica Argentina that airs in channel 7, and that the program was broadcast at 8:00 pm. Although the number of people and the timeslot changed over time, the name "678" was kept. It is an Archive television program focused on politics and journalism. It was created during the campaign for the 2009 midterm elections, in order to broadcast the Kirchnerite propaganda known as Relato K, and to attack the opposing candidates. It received a privileged timeslot on Sundays, right after the broadcasting of the Ftbol para todos weekly matches. Once the elections were over, it continued to voice the Kirchnerite view in the conflict between Kirchnerism and the media.[3]Mauricio Macri, president of Argentina since December 10, 2015, appointed Hernn Lombardi as the new manager for Channel 7. Soon thereafter it was announced that the channel would not air 6, 7, 8 because the production company decided not to renew the contract with the TV Pblica.[4][5]According to Clarn newspaper the program uses archive footage to criticize Mass Media outlets, judges and political opponents to the national government.[6]On October 13, 2009 the program aired a video that had circulated in blogs. The anonymous video was recorded through a hidden camera, and it shows the journalist and columnist of newspaper La Nacin, Carlos Pagni, in an alleged operation to publish false information for the purpose of damaging the oil company Repsol YPF. The broadcast of the video was criticized by the Partido Solidario deputy Carlos Heller who was a guest on the program that day, expressing his objection to the publication of anonymous films. The contents of the video were criticized by the panelists after it was shown.According to an article in La Nacin that was published the next day about the segment, "the presentation of the hidden camera, and the images of the hidden camera (cut, but carefully and professionally edited) do not, at any moment, show the columnist in situations that could corroborate the serious and injurious charges about corruption that are made in the video through printed boards and a voice-over".[7]In the video, there are appearances by other people who may represent Pagni, receiving money in return for newspaper articles. However, after the airing on October 13, Pagni received the support of the Argentine Journalism Forum (Foro del Periodismo Argentino) and other journalists.[8]YPF issued a complaint to investigate who recorded the video, and the veracity of the facts that are seen on it. They assured that "it is true that the video is anonymous and made in a more obscure way. However, it warns that it was a journalistic operation against us".[9]2013 Martn Fierro AwardsBest journalism program[10]^ Asteriscos.tv Seis, siete, ocho y ahora a las nueve? (in Spanish)^ "6, 7, 8 en TVPblica.com.ar". Archived from the original on 2013-08-04. Retrieved 2010-04-16.^ Olivn, pp. 9-12^ "Chau 6, 7, 8". Archived from the original on 2015-11-25. Retrieved 2015-11-24.^ "Adis 678".^ Clarin.com, El programa que ataca a los medios crticos cuesta caro Archived 2010-01-13 at the Wayback Machine (in Spanish)^ La Nacin.com, Agravia Canal 7 a un columnista con un video annimo Archived 2011-06-05 at the Wayback Machine (in Spanish)^ Cable en Minutouno Archived 2011-07-06 at the Wayback Machine (in Spanish)^ Igual hubo una operacin, por Ral Kollmann (in Spanish)^ "Todos los nominados a los Martn Fierro 2014" [All the nominations for the 2014 Martn Fierro]. La Nacin (in Spanish). April 15, 2014. Retrieved April 15, 2014.Olivn, Mara Julia (2010). 678: La creacin de otra realidad. Argentina: Paidos. ISBN978-950-12-0700-2.Website for the company Pensado para TelevisinOfficial website of Canal SieteRetrieved from " 4The following pages link to 6, 7, 8 External tools(link counttransclusion countsorted list) See help page for transcluding these entriesShowing 22 items.View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)678 (links | edit)Index of Argentina-related articles (links | edit)Orlando Barone (links | edit)678 show (redirect page) (links | edit)Six in the Seven at Eight (redirect page) (links | edit)44th Martn Fierro Awards (links | edit)43rd Martn Fierro Awards (links | edit)45th Martn Fierro Awards (links | edit)Relato K (links | edit)6-7-8 (redirect page) (links | edit)Talk:6-7-8 (links | edit)User:EranBot/Copyright/rc/62 (links | edit)Archive television program (links | edit)Talk:6, 7, 8 (transclusion) (links | edit)User:AlexNewArtBot/TelevisionSearchResult/archive2 (links | edit)User:AlexNewArtBot/FilmsSearchResult/archive19 (links | edit)User:AlexNewArtBot/LawFeedSearchResult/archive76 (links | edit)User:AlexNewArtBot/TestFeedSearchResult/archive115 (links | edit)User:AlexNewArtBot/ArgentinaSearchResult/archive3 (links | edit)User:CleanupWorklistBot/lists/Argentina (links | edit)User:Uanfala/dab/missing entries exceptions (links | edit)Wikipedia:WikiProject Argentina/Politics watchlist (links | edit)Wikipedia:WikiProject Latin America/The 10,000 Challenge (links | edit)Wikipedia:WikiProject Latin America/The 10,000 Challenge/11000 (links | edit)View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Retrieved from " WhatLinksHere/6, 7, 8" The converse of Pythagoras theoremstates that If the square of a side is equal to the sum of the other two sides, then triangle must be right angle triangle. Whereas Pythagorean theorem states that the sum of the square of two sides (legs) is equal to the square of the hypotenuse of a right-angle triangle. But, in the reverse of the Pythagorean theorem, it is said that if this relation satisfies, then triangle must be right angle triangle. So, if the sides of a triangle have length, a, b and c and satisfy given condition a2 + b2 = c2, then the triangle is a right-angle triangle. Let us see the proof of this theorem along with examples.Converse of Pythagoras Theorem ProofStatement: If the length of a triangle is a, b and c and c2 = a2 + b2, then the triangle is a right-angle triangle.Proof: Construct another triangle, EGF, such as AC = EG = b and BC = FG = a.In EGF, by Pythagoras Theorem:EF2 = EG2 + FG2 = b2 + a2 (1)In ABC, by Pythagoras Theorem:AB2 = AC2 + BC2 = b2 + a2 (2)From equation (1) and (2), we have;EF2 = AB2EF = AB ACB EGF (By SSS postulate) G is right angleThus, EGF is a right triangle.Hence, we can say that the converse of Pythagorean theorem also holds.Hence Proved.FormulaAs per the converse of the Pythagorean theorem, the formula for a right-angled triangle is given by: Where a, b and c are the sides of a triangle.ApplicationsBasically, the converse of the Pythagoras theorem is used to find whether the measurements of a given triangle belong to the right triangle or not. If we come to know that the given sides belong to a right-angled triangle, it helps in the construction of such a triangle. Using the concept of the converse of Pythagoras theorem, one can determine if the given three sides form a Pythagorean triplet.Converse of Pythagoras Theorem ExamplesQuestion 1: The sides of a triangle are 5, 12 and 13. Check whether the given triangle is a right triangle or not?Solution: Given,a = 5b = 12c = 13By using the converse of Pythagorean Theorem,a2+b2 = c2Orc2 = a2+b2Substitute the given values in the above equation,132 = 52+122169 = 25 + 144169 = 169So, the given lengths are does not satisfy the above condition.Therefore, the given triangle is a right triangle.Question 2: The sides of a triangle are 7, 11 and 13. Check whether the given triangle is a right triangle or not?Solution: Given;a = 7b = 11c = 13By using the converse of Pythagorean Theorem,c2 = a2+b2Substitute the given values in the the above equation,132 = 72 + 112169 = 49 + 121169 = 170So, it is not satisfied with the above condition.Therefore, the given triangle is not a right triangle.Question 3: The sides of a triangle are 4,6 and 8. Say whether the given triangle is a right triangle or not.Solution: Given: a = 4, b = 6, c = 8By the converse of Pythagoras theorema2+b2 = c282 = 42 + 6264 = 16 + 3664 = 52The sides of the given triangle do not satisfy the condition a2+b2 = c2.Therefore, the given triangle is not a right triangle. As we know, the Pythagoras (Pythagorean) Theorem states that for a right angle triangle, the square of the hypotenuse is equal to the sum of the squares of the other 2 sides. The above relation is mathematically represented as, a2 + b2 = c2, c = length of the hypotenuse, a & b are the lengths of the other 2 sides This article will deal with the converse of the Pythagorean Theorem. The converse of the Pythagorean Theorem states that if the square of the length of the longest side of a triangle is equal to the sum of the squares of the other 2 sides, then the triangle is a right triangle. The corollary states if a triangle has a side length of a, b, and c, where c is the hypotenuse, we can determine It thus gives us an easy way to prove whether a triangle is a right triangle or not. A triangle has sides 5 m and 12 m, with the longest side of 13 m. Is it a right-angle triangle?Solution:As we know,In a right angle triangle,a2 + b2 = c2, here c = 13, a = 5 m, b = 12 mIf the given triangle is a right angle triangle, then52 + 122 = 132 will be trueNow,52 + 122=> 25 + 144=> 169=> 132Thus, 52 + 122 = 132 holds true for the Pythagorean Theorem, thus it is a right angle triangle. Not only the Converse of the Pythagorean Theorem tells us whether a triangle is a right angle or not, its corollary states if a triangle has a side length of a, b, and c, where c is the hypotenuse, we can determine whether the triangle is acute or obtuse. This is done by comparing the sum of the squares of the shorter sides with the square of the longest side of the triangle as given below. Converse of Pythagoras Theorem Thus, If the sum of the squares of the shorter sides is equal to the square of the longest side (a2 + b2 = c2), the triangle is a right triangle. This means the longest side of the triangle lies opposite to the 90If the sum of the squares of the shorter sides is greater than the square of the longest side (a2 + b2 > c2), then the triangle is an acute triangle.If the sum of the squares of the shorter sides is smaller than the square of the longest side (a2 + b2 < c2), then the triangle is an obtuse triangle. Determine whether a triangle with sides 3 cm, 5 cm, and 7 cm is an acute, right or obtuse triangle.Solution:As we know,In a right angle triangle,a2 + b2 = c2, here a = 3 cm, b = 5 cm, c = 7 cmNow,a2 + b2 = 32 + 52 = 9 + 25 = 34c2 = 72 = 49Thus,36 < 49 (a2 + b2 < c2) and thus it is an obtuse triangle Converse of Pythagoras TheoremTo prove: ABC is a Right TriangleProof:AC2= AB2+ BC2We make a right angle triangle PQR such as PQ = AB and QR = BCNow, in right angle triangle PQR, we have:PR2 = PQ2 + QR2 (By Pythagoras Theorem, as Q=90)=> PR2 = AB2 + BC2 (By construction).. (1)Again, AC2 = AB2 + BC2 (Given). (2)Thus, AC = PR [From (1) and (2)].. (3)In ABC and PQR,AB = PQ [By construction]BC = QR [By constructionAC = PR [Proved by in (3)]Thus,ABC PQR [By SSS congruence theorem]B = Q [Corresponding angles of congruent triangles]Q = 90 [By construction]Hence,B = 90Thus, ABC is a right triangle Hence Proved Last modified on August 3rd, 2023 The converse of the Pythagorean theorem helps you to find out if a triangle is a right triangle. Furthermore, it can help you find the type of triangle you are dealing with.Basically, the converse of the Pythagorean theorem states that whenever the sum of the squares of two sides (legs) equal to the square of the third side (hypotenuse) of the triangle, the triangle is a right triangle.Suppose a, b, and c are sides of a triangle and c is the longest side of the triangle.If c2= a2+ b2, then the triangle is a right triangle. The triangle has 1 right angle and 2 acute angles. For example, given the following 3 sides, is the triangle a right triangle?4, 5, 3You just need to ask yourself the following question:Is 52 = 42 + 32 ?52 = 25 and 42 + 32 = 16 + 9 = 25Since 25 = 25, the triangle with sides 4, 5, and 3 is a right triangle.Notice that c must be equal to 5 since c is always the biggest side. After that it does not really matter which number is b or c. You can choose either 4 or 3 to be b or a.Example #2Do the sides 6, 8, and 10 form a right triangle?You just need to ask yourself the following question:Is 102 = 62 + 82 ?102 = 100 and 62 + 82 = 36 + 64 = 100Since 100 = 100, the triangle is a right triangle.More examples showing how to use the converse of the Pythagorean theorem:Example #3Do the sides 8, 12, and 14 form a right triangle?You just need to ask yourself the following question:Is 142 = 82 + 122 ?142 = 196 and 82 + 122 = 64 + 144 = 208Since 196 is not equal to 208, the triangle is not a right triangle.Example #4Do the sides 9, 12, and 15 form a right triangle?You just need to ask yourself the following question:Is 152 = 92 + 122 ?152 = 255 and 122 + 92 = 144 + 81 = 225Since 255 = 255, the triangle is a right triangle. You can also use the converse of the Pythagorean theorem to find out if a triangle is an obtuse triangle or an acute triangle.Obtuse triangleIf c2> a2+ b2, then the triangle is an obtuse triangle.If the square of the length of the longest side of a triangle is bigger than the sum of the squares of the lengths of the other two sides, then the triangle is obtuse. The triangle has 1 obtuse angle and 2 acute angles.Acute triangleIf c2 < a2+ b2, then the triangle is an acute triangle.If the square of the length of the longest side of a triangle is smaller than the sum of the squares of the lengths of the other two sides, then the triangle is acute. The triangle has 3 acute angles.Example #5Determine if the triangle with side lengths 12, 6, 8 is a right triangle, an obtuse triangle, or an acute triangle.122 = 14462 + 82 = 36 + 6462+ 82= 100Since 144 is bigger than 100, the triangle is obtuse.Example #6Determine if the triangle with side lengths 5, 6, 7 is a right triangle, an obtuse triangle, or an acute triangle.72= 4952+ 62= 25 + 3652+ 62= 61Since 49 is smaller than 61, the triangle is acute.Buy a comprehensive geometric formulas ebook. All geometric formulas are explained with well selected word problems so you can master geometry.

When would you use the converse of the pythagorean theorem explain. Use the converse of the pythagorean theorem. Converse pythagoras theorem. Use the converse of pythagoras' theorem. What is the converse of the pythagorean theorem.