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Download the Testbook APP & Get Pass Pro Max FREE for 7 Days10,000+ Study NotesRealtime Doubt Support71000+ Mock TestsRankers Test Series+ more benefitsDownload App NowWritten by January 26, 2023Fact-checked by Paul MazzolaTheoremFormulaExterior angles definedTheorem proofExampleFAQTheexterior angle theoremtells us that any exterior angle of a triangle equals the sum of the opposite two interior angles and that the sum of all three interior angles of a triangle equals180, the sum of two right angles (triangle sum theorem).Exterior angle theorem formulaThe exterior angle theorem is based on Euclid's proposition 16 and proposition 32 of his Elements. Together they give us the exterior angle theorem that we can use to solve missing angle measurents of triangles.Exterior angle theoremGet free estimates from geometry tutors near you.To understand the exterior angle theorem, you must know what an exterior angle of any polygon is. A triangle has three interior angles, but it also has six exterior angles, which are the angles between a side of a triangle and an extension of an adjacent side.Taking one exterior angle at each vertex, the sum of any polygons exterior three angles is always360. This works in either direction.Exterior angle theorem proofLet's construct a triangle with an exterior angle and prove the exterior angle theorem.Here isABC, named for it's three angles, angleA, angleB, and angleC. We have extended one side,BC, far past the triangle-Constructing exterior angleWe addPointDon segmentBCand now have segmentBD. This gives us the exteriorACD.Next, we construct a line segment parallel to segmentAB.Exterior angle theorem proofSince segmentsABandCE are parallel, both line segmentsACandBDare transversals of parallel lines. That meansBACandACCare congruent because they arealternate interior anglesof two parallel lines cut by a transversal.The two angles,ECDandABC, are also congruent because they arecorresponding angles.Therefore,ACDis equal to the sum of the measures forBAC+ABC, the triangles two interior angles opposite the exteriorACD.The last step, adding interiorACBtoACDto get the straight line segmentBD, demonstrates that the three interior angles of the triangle sum to180.Exterior angle theorem exampleThe exterior angle theorem is useful for finding an unknown angle of any triangle. If you are given the measure of one exterior angle of the triangle,J, and one opposite angle,F, subtraction will give you the missing angle,G. The symbol,indicates a measured angle.Subtract the known interior angle from the exterior angle:Suppose an exterior angle measures110and you are told one of its opposite interior angles measures47. Plug in the knowns to find the unknown:Now you know two of the three interior angles and can, if needed, easily find the third interior angle by subtracting them from180:Exterior angle theorem - finding unknown angle of a triangleGet free estimates from geometry tutors near you.You can also use the theorem to find the angle adjacent to the exterior angle, simply by subtracting the exterior angle from180.Exterior angle theorem FAQDo you have this figured out? Check for understanding by answering these questions.How many exterior angles does a triangle have? How many interior angles?What is the sum of the interior angles of a triangle?What is the sum of one set of exterior angles of a triangle?An exterior angle of a triangle measures 145 and one of its opposite interior angles is 51. What is the measure of the other opposite interior angle?An exterior angle of a triangle measures 139. What is the measure of the triangles adjacent interior angle?Please do your best before checking your answers against ours.A triangle has six exterior angles and three interior angles. The sum of the interior angles of a triangle is 180 (triangle sum theorem).The sum of one set of exterior angles of a triangle is 360.An exterior angle of a triangle measures 145 and one of its opposite interior angles is 151. The measure of the other opposite interior angle is 91An exterior angle of a triangle measures 139. The measure of the triangles adjacent interior angle must be 41. They are supplementary angles.Related PagesExterior Angles Of A TriangleTypes Of TrianglesInterior Angles of a TriangleAngles In A TriangleExterior Angle TheoremAn exterior angle of a triangle is formed by any side of a triangleand the extension of its adjacent side.The Exterior Angle Theorem states that:An exterior angle of a triangle is equal to the sum of the two oppositeinterior angles.The following diagram shows the exterior angle theorem. Scroll down the page for more examples and solutionsusing the exterior angle theorem to solve problems.Using The Exterior Angle Theorem To Solve ProblemsExample:Find the values of x and y in the following triangle.Solution:x + 50 = 92 (sum of opposite interior angles = exterior angle)x = 92 50 = 42y + 92 = 180 (interior angle + adjacent exterior angle = 180).y = 180 92 = 88 What is the Exterior Angle Theorem and how it can be used the find the angles in a triangle?An exterior angle of a triangle is formed when an side is extended outwardsThe exterior angle theorem states that the exterior angle of a triangle is equal to the sum of the opposite interior angles.We can derive the exterior angle theorem using the information thatThe angles on a straight line add up to 180The interior angles of a triangle add up to 180Show Video LessonThe exterior angle theorem of geometryThe exterior angle theorem is used to work out some applications in finding angles of a triangle.Show Video LessonExterior Angle TheoremThis video discusses the exterior angle theorem. It also defines what exterior and remote interior angles are.It solves two example problems in detail. The first example problem is pretty basic. The second example problemis much harder.An exterior angle is an angle formed by the extension of one side of a triangle.The remote interior angles are the two interior angles of the triangle not adjacent to the exterior angle.Example:Identify the exterior angle and the remote interior angles in each problem, then solve for the missing angle.Show Video LessonHow to use the Exterior Angle Theorem to solve problems involving angles in a triangle?Show Video LessonProof Of The Exterior Angles TheoremThis video provides a two column proof of the exterior angles theoremShow Video LessonExternal Angle Theorem - Proof and ExamplesThis video proves the External Angle Theorem (sometimes called the External Angle Conjecture), and thenworks some typical example problems where this concept might be applied.Show 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.So, we all know that a triangle is a 3-sided figure with three interior angles. But there exist other angles outside the triangle, which we call exterior angles.We know that the sum of all three interior angles is always equal to 180 degrees in a triangle.Similarly, this property holds for exterior angles as well. Also, each interior angle of a triangle is more than zero degrees but less than 180 degrees. The same goes for exterior angles.In this article, we will learn about:Triangle exterior angle theorem,exterior angles of a triangle, and,how to find the unknown exterior angle of a triangle?What is the Exterior Angle of a Triangle?The exterior angle of a triangle is the angle formed between one side of a triangle and the extension of its adjacent side.In the illustration above, the triangle ABC's interior anglesare a, b, c, and the exterior angles are d, e, and f. Adjacent interior and exterior angles are supplementary angles.In other words, the sum of each interior angle and its adjacent exterior angle is equal to 180 degrees (straight line).Triangle Exterior Angle TheoremTheexterior angle theoremmakes the measure of each exterior angle of a triangle is equal to the sum of the opposite and non-adjacent interior angles. Remember that the two non-adjacent interior angles opposite the exterior angle are sometimes referred to as remote interior angles.For example, in triangle ABC above, d = b + a e = a + c f = b + cProperties of exterior anglesAn exterior angle of a triangle is equal to the sum of the two opposite interior angles.The sum of exterior angle and interior angle is equal to 180 degrees. c + d = 180 a + f = 180 b + e = 180All exterior angles of a triangle add up to 360.Proof: d + e + f = b + a + a + c + b + c d + e + f = 2a + 2b + 2c= 2(a + b + c)But, according to triangle angle sum theorem,a + b + c = 180 degreesTherefore, d + e + f = 2(180)= 360How to Find the Exterior Angles of a Triangle?Rules to find the exterior angles of a triangle are pretty similar to the rules to find the interior angles. It is because wherever there is an exterior angle, there is an interior angle with it, and both add up to 180 degrees.Lets take a look at a few example problems.Example 1Given that for a triangle, the two interior angles 25 and (x + 15) are non-adjacent to an exterior angle (3x 10) , find the value of x.SolutionApply the triangle exterior angle theorem: (3x 10) = (25) + (x + 15) (3x 10) = (25) + (x +15) 3x 10 = x + 40 3x 10 = x + 40 3x = x + 50 3x = x + 50 2x = 50x =25Hence, x = 25Substitute the value of x into the three equations. (3x 10) = 3(25) 10= (75 10) = 65 (x+15) = (25 + 15) = 40Therefore, the angles are 25, 40 and 65.Example 2Calculate values ofxandyin the following triangle.SolutionIt is clear from the figure that y is an interior angle and x is an exterior angle.By Triangle exterior angle theorem, x = 60 + 80x = 140The sum of exterior angle and interior angle is equal to 180 degrees (property of exterior angles). So, we have; y + x = 180 140 + y = 180subtract 140 from both sides. y = 180 140y = 40Therefore, the values of x and y are 140 and 40, respectively.Example 3The exterior angle of a triangle is 120. Find the value of x if the opposite non-adjacent interior angles are (4x + 40) and 60.SolutionExterior angle = sum of two opposite non-adjacent interior angles.120 =4x + 40 + 60Simplify. 120 = 4x + 100Subtract 120 from both sides. 120 100 = 4x + 100 100 20 = 4xDivide both sides by to get, x = 5Therefore, the value of x is 5 degrees.Verify the answer by substitution.120= 4x + 40 + 60120 = 4 (5) + 40 + 60120 = 120 (RHS = LHS)Example 4Determine the value of x and y in the figure below.SolutionSum of interior angles = 180 degrees + 41 + 92 = 180Simplify,y + 133 = 180subtract 133 from both sides,y = 180 133y = 47Apply the triangle exterior angle theorem,x = 41 + 47x = 88Hence, the value of x and y is 88 and 47, respectively.Imagine standing in front of a triangle and realizing that the angles hold secrets waiting to be uncovered. The exterior angle theorem reveals fascinating relationships between angles that can transform your understanding of geometry. This theorem states that the measure of an exterior angle is equal to the sum of the measures of the two opposite interior angles.The exterior angle theorem is a fundamental concept in geometry. It states that the measure of an exterior angle of a triangle equals the sum of the measures of its two opposite interior angles. This theorem plays a crucial role in solving problems related to triangles.For example, consider a triangle with angles measuring 40 degrees and 60 degrees. The exterior angle formed by extending one side would measure 100 degrees, calculated as follows:Measure of interior angle 1: 40 degreesMeasure of interior angle 2: 60 degreesCalculation: 40 + 60 = 100 degreesAnother example involves a triangle with angles measuring 30 degrees and 70 degrees. The corresponding exterior angle measures 100 degrees:Measure of interior angle 1: 30 degreesMeasure of interior angle 2: 70 degreesCalculation: 30 + 70 = 100 degreesIn practical applications, architects often use this theorem when designing structures involving triangular shapes. Understanding how each angle relates helps ensure stability and aesthetic appeal.You can visualize this concept through diagrams or geometric software that illustrate triangles and their corresponding exterior angles. This visualization strengthens your grasp on how these angles interact within various configurations.Overall, the exterior angle theorem provides valuable insights into triangular relationships, making it easier for you to solve complex geometric problems with confidence.The exterior angle theorem holds significant value in geometry, especially when analyzing triangles. Understanding this theorem not only clarifies relationships among angles but also aids in solving complex geometric problems effectively.The exterior angle theorem serves as a foundational tool for various geometric applications. For example, consider a triangle with an interior angle measuring 30 degrees and another at 50 degrees. According to the theorem, the exterior angle measures 80 degrees, which equals the sum of these two angles. This principle becomes essential when calculating unknown angles in larger geometric shapes or during proof constructions. This theorem connects seamlessly with several other fundamental concepts in geometry. For instance:Triangle Sum Theorem: The sum of interior angles in any triangle equals 180 degrees.Vertical Angles Theorem: Vertical angles formed by intersecting lines are always equal.Recognizing these relationships enhances your understanding and application of geometry overall. By leveraging these interconnected principles, you can tackle challenges confidently and efficiently.The proof of the exterior angle theorem solidifies its significance in triangle geometry. It illustrates how an exterior angle relates to the two opposite interior angles.Identify Angles: Start with triangle ABC, where D is a point outside the triangle forming an exterior angle at vertex A.Label Angles: Let angle A be represented as A, and the two opposite interior angles as B and C.Apply Triangle Sum Theorem: Recall that the sum of interior angles in any triangle equals 180 degrees:tex{A} + tex{B} + tex{C} = 180\text{.} Rearrange Equation: Rearranging gives:tex{A} = 180 (tex{B} + tex{C})\text{.} Recognize Exterior Angle: Since the exterior angle (which is D) forms a linear pair with A, you find:tex{D} = 180 tex{A}\text{.} Combine Results: Substitute for A from earlier to yield:tex{D} = (tex{B} + tex{C})\text{.} Conclusion Proof: Thus, it proves that the measure of an exterior angle equals the sum of measures of its opposite interior angles.Diagrams greatly enhance understanding of geometric concepts like this one. Draw triangle ABC, marking points clearly.Label vertices A, B, C.Extend side BC past point C to create an exterior angle at vertex A.Indicate angles with arc marks or color coding for clarity.This visual aid reinforces how each part interacts within your proof, making complex relationships easier to grasp and remember.Understanding the exterior angle theorem enhances your ability to analyze triangles. Here are some practical examples demonstrating its application.The exterior angle theorem finds use in various fields. For instance, in architecture, knowing how angles relate helps ensure structures remain stable. Similarly, engineering relies on the theorem to calculate load distributions accurately. Additionally, in land surveying, professionals apply the theorem for precise measurements when laying out plots of land.Consider a triangle with interior angles measuring 50 degrees and 70 degrees. You can find the exterior angle as follows:Add the two opposite interior angles:(50 + 70 = 120) degrees.2. The exterior angle is therefore 120 degrees.Another scenario involves a triangle where interior angles measure 30 degrees and 80 degrees:Again, add the opposite interior angles:(30 + 80 = 110) degrees.2. Thus, the exterior angle measures 110 degrees.These scenarios illustrate how straightforward it is to apply the exterior angle theorem effectively in both academic and practical contexts.Many misunderstandings surround the exterior angle theorem. Here are some of the most common misconceptions:The exterior angle is always larger than any interior angle. While its often true, this isnt a strict rule. The relationship depends on the specific triangles angles.You can calculate an exterior angle without knowing both opposite interior angles. This isnt accurate; you must know both angles to use their sum for the calculation.The theorem only applies to triangles. Though primarily used with triangles, its principles can extend to other polygons when considering extended angles.Exterior angles can be calculated in any configuration of lines and shapes. In reality, it only applies when dealing with linear pairs formed by extending one side of a triangle.Understanding these misconceptions clarifies how to apply the theorem correctly while avoiding common pitfalls in geometric problem-solving. Always remember that grasping these details enhances your overall understanding of geometry and its applications. Exterior angle theorem states that the measure of an exterior angle of a triangle is equal to the sum of two remote interior angles. The remote interior angles or opposite interior angles are the angles that are non-adjacent with the exterior angle. A triangle is a polygon with three sides. When we extend any side of a triangle, an angle is formed by the adjacent side and the extended ray. This angle is known as the exterior angle of a triangle. In the figure given below, the exterior angle \$angle ACD\$ is formed by extending the side BC. According to the exterior angle theorem, the measure of an exterior angle of a triangle is equal to the sum of the measures of the two opposite (remote) interior angles. Take a look at the triangle shown in the figure given below. \$angle BCD\$ is the exterior angle and its two opposite interior angles are \$angle AS\$ and \$angle BS\$. According to the exterior angle theorem, \$angle BCD = angle A + angle BS\$ We can use this theorem to find the measure of an unknown angle in a triangle. Example: Find x. Here, x is the exterior angle with two opposite interior angles measuring \$55^{\circ}\$ and \$45^{\circ}\$. By the exterior angle theorem, \$x = 55^{\circ} + 45^{\circ} = 100^{\circ}\$. More Worksheets We can prove the exterior angle theorem using two methods. We can prove the exterior angle theorem with the known properties of a triangle. Consider a \$\Delta ABC\$. \$angle ACD\$ is the exterior angle. \$angle A + angle B + angle C = 180^{\circ}\$ (Angle Sum Property of a triangle) (1) \$angle C = 180^{\circ} - (angle A + angle B)\$ (2) \$angle ACD = 180^{\circ} - (angle A + angle B)\$ (Linear Pair of Angles) (3) Substituting the value of c in equation 3, we get \$angle ACD = 180^{\circ} - (angle A + angle B)\$ (4) \$angle A + angle B = 180^{\circ} - angle ACD\$ (5) Hence proved. Given: Consider a \$\Delta ABC\$ where a,b and c are the three interior angles. Construction: Extend the side BC. Let D be any point on the extended side BC. Now an exterior angle, \$angle ACD\$ is formed. Draw a line CE parallel to AB. Angles 1 and 2 are the angles formed by the line CE such that \$angle ACD = angle 1 + angle 2\$ Proof: \$AB \parallel CE\$, \$AC\$ is the transversal. So, \$angle a = angle 1\$ (Pair of alternate angles) \$AB \parallel CE\$, \$BD\$ is the transversal. So, \$angle b = angle 2\$ (Pair of corresponding angles) \$angle ACD = angle 1 + angle 2\$ (Construction) Substituting the value of \$angle 1\$ and \$angle 2\$, we get \$angle ACD = angle a + angle b\$ Hence, we proved that the exterior angle of a triangle is equal to the sum of the two opposite interior angles. The exterior angle inequality theorem states that the measure of any exterior angle of a triangle is greater than each of the opposite interior angles. This theorem holds true for all the six exterior angles of a triangle. In this article, we learned about the exterior angle theorem, its statement and proof. We also learned the exterior angle inequality theorem. Lets solve a few examples and practice problems based on these concepts. 1. Find the value of \$angle ACB\$ in the following figure. Solution: \$angle CAD\$ is the exterior angle of \$\Delta ABC\$. By the exterior angle theorem, \$angle CAD = angle ABC + angle ACB\$ \$120^{\circ} = 40^{\circ} + angle ACB\$ \$angle ACB = 120^{\circ} - 40^{\circ} = 80^{\circ}\$ 2. Find the value of x in the following figure. Solution: \$(8x + 25)^{\circ}\$ is the exterior angle of \$\Delta PQR\$. Its remote interior angles are \$(2x + 10)^{\circ}\$ and \$(5x + 20)^{\circ}\$. By the exterior angle theorem, \$8x + 25 = 2x + 10 + 5x + 20\$ \$8x - 2x - 5x = 10 + 20 - 25\$ \$x = 5\$ 3. Find the value of y in the following figure. Solution: There are two triangles in the figure, \$\Delta DBC\$ and \$\Delta ABE\$. \$angle EBA = x\$ is the exterior angle of \$\Delta DBC\$. By the exterior angle theorem, \$angle EBA = angle BDC + angle BCD\$ \$x = 30^{\circ} + 50^{\circ} = 80^{\circ}\$ \$angle DEA = y\$ is the exterior angle of \$\Delta ABE\$. By the exterior angle theorem, \$angle DEA = angle EBA + angle BAE\$ \$y = x + 30^{\circ} = 80^{\circ} + 30^{\circ} = 110^{\circ}\$ 4. Find the value of \$angle PRQ\$ using exterior angle theorem. Solution: \$QS\$ is a straight line. \$angle SPR + angle QPR = 180^{\circ}\$ (Angles in a linear pair) \$135^{\circ} + angle QPR = 180^{\circ}\$ \$angle QPR = 180^{\circ} - 135^{\circ} = 45^{\circ}\$ \$angle TQP\$ is the exterior angle of \$\Delta PQR\$. By the exterior angle theorem, \$angle TQP = angle PRQ + angle QPR\$ \$110^{\circ} = angle PRQ + 45^{\circ}\$ \$angle PRQ = 110^{\circ} - 45^{\circ} = 65^{\circ}\$ Attend this quiz & Test your knowledge. Correct answer is: \$120^{\circ}\$ \$x\$ is the exterior angle of the triangle. By the exterior angle theorem, \$x = 50^{\circ} + 70^{\circ} = 120^{\circ}\$ Correct answer is: remote interior angles An exterior angle of a triangle equals the sum of remote interior angles. Correct answer is: \$47^{\circ}\$ In \$\Delta ABC\$, \$AB = BC \Rightarrow \angle BAC = \angle BCA = y\$ By Angle Sum Property of a Triangle, \$y + y + 50^{\circ} = 180^{\circ}\$ \$2y = 130^{\circ}\$ \$y = 65^{\circ}\$ \$angle ACB = y\$ is the exterior angle of \$\Delta ACD\$. \$y = \angle CAD + \angle CDA\$ \$65 = x + 28\$ \$x = 37\$ Correct answer is: \$120^{\circ}\$ Each interior angle of an equilateral triangle is \$60^{\circ}\$. Exterior angle \$= 60^{\circ} + 60^{\circ} = 120^{\circ}\$ Why is the sum of exterior angles of a triangle is \$360^{\circ}\$? The sum of angles in a triangle is \$180^{\circ}\$. Each exterior angle of a triangle equals the sum of two remote interior angles. If we add the three exterior angles, we will have to add each interior angle twice. Thus, the sum of the measures of the exterior angles of a triangle is \$360^{\circ}\$ degrees. What is the difference between angle sum property of a triangle and exterior angle property of a triangle? According to the angle sum property of a triangle, the sum of all the interior angles of a triangle equals \$180^{\circ}\$. On the other hand, the exterior angle theorem states that exterior angle is equal to the sum of remote interior angles. If each interior angle of a triangle gets doubled, then how will it affect the exterior angle of the triangle? If each interior angle of a triangle gets doubled, then the exterior angle of the triangle gets doubled. Original equation for the exterior angle e: \$e = a + b\$ New equation: \$e = 2a + 2b = 2(a+b) = 2e\$ How many exterior angles does a triangle have? A triangle has 6 exterior angles. What is the exterior angle theorem formula? Exterior Angle \$= \$ The sum of two remote (opposite) interior angles The exterior angle d of a triangle: equals the angles a plus b is greater than angle a, and is greater than angle b The exterior angle is \$35 + 62 = 97\$ And \$97 > 35\$ And \$97 > 62\$ Because the interior angles of a triangle add to 180, and angles c+d also add to 180: The interior angles of a triangle add to 180: a + b + c = 180 Angles c and d make a straight angle, which is 180: d + c = 180 So d + c equals a + b + c+d = a + b + c Subtract c from both sides: d = a + b Works For Any Triangle's Exterior Angle The exterior angle is 40 + 27 = 67 And 67 > 40 And 67 > 27 We can't calculate exactly, but we can say: d > 61 Copyright 2025 Rod Pierce 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, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the 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. The exterior angle of a triangle is the angle formed between one side and the extension of its adjacent side. Shown below is the ABC where ACD is the exterior angle formed by the side AC and the extension of the side BC to D. Exterior Angle of a Triangle Every triangle has three exterior angles, two at each vertex. How Many Exterior Angles Does A Triangle Have Properties of Exterior Angles of a Triangle An exterior angle of a triangle is equal to the sum of the two opposite interior angles, thus an exterior angle is greater than any of its two opposite interior angles; for example, in ABC, 5 = a + bThe sum of an exterior angle and its adjacent interior angle is equal to 180 degrees; for example, 5 + c = 180All exterior angles of a triangle add up to 360 (taken one angle at each vertex); 1 + 3 + 5 = 360The two exterior angles at each vertex are equal (vertically opposite angles); 1 = 2, 3 =4, & 5 = 6 Triangle Exterior Angle Theorem Prove Triangle Exterior Angle TheoremTo prove:ACD = ABC + CABProof:Given: ABC, ABD is a line segmentACD + BCA = 180 (1) [ACD + BCA form a linear pair, they are supplementary]ABC + BCA + CAB = 180 . (2) [Angle Sum Property of a Triangle]Substituting (1) in (2), we getACD + BCA = ABC + BCA + CABACD = ABC + CABHence Proved Given below are some solved examples to understand the concept. Here, we will apply the exterior angle theorem to find the missing interior or exterior angles in a triangle. In the given triangle, if m1 = 40 and m2 = 80, find m4.Solution:As we know, from the exterior angle theorem,m = m1 + m2, here m1 = 40, m2 = 80m4 = 40 + 80 = 120 Solve for x.Solution:As we know, from the exterior angle theorem, (x 2) + (2x + 10) = 140=> 3x + 8 = 140=> 3x = 132=> x = 44 If the measure of the exterior angle is (5x 10) degrees, and the measure of the two remote interior angles are 30 degrees and (x + 20) degrees, find x.Solution:As we know, from the exterior angle theorem,(5x 10) = 30 + (x + 20)5x x = 30 + 20 + 104x = 60x = 15 Calculate values ofxand y in the given triangle.Solution:In the given triangle, x is the exterior angle and y is the interior angleAs we know, from the exterior angle theorem,x = 80 + 50 = 130Now, as x and y are linear pairs that add up to 180Thus, x + y = 180, here x = 130130 + y = 180y = 50 Last modified on August 3rd, 2023

Exterior angles of a triangle theorem. Exterior angle of a triangle example. Exterior angle theorem examples. Triangle exterior angle. Triangle exterior angle theorem formula.