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In order to continue enjoying our site, we ask that you confirm your identity as a human. Thank you very much for your cooperation. Adjacent angles are the angles that have a common arm (side) and a common vertex, however, they do not overlap. An angle is formed when two rays meet at a common endpoint and adjacent angles are those angles that are always placed next to each other. When the sum of two adjacent angles is 180° then they are called a linear pair of angles. Let us learn more about adjacent angles and see some adjacent angles examples in this page. What are Adjacent Angles? Two angles are said to be adjacent angles, if, they share a common vertex, a common side and they do not overlap. Observe the following figure to understand what adjacent angles look like. Angle 1 and 2 are adjacent because they have a common side BD and a common vertex B. Adjacent Angles Definition Adjacent angles are those angles that are always placed next to each other in such a way that they share a common vertex and a common side but they do not overlap each other. Adjacent Angles Examples We can see many real-life examples of adjacent angles. Adjacent Angles in Real Life The most common real-life example of adjacent angles can be seen in two pizza slices that are placed next to each other. Another common example can be seen in the clock which shows the hour, minute, and second hand that form adjacent angles when all the 3 are away from each other. We can find 3 adjacent angles in the steering wheel of a car. Properties of Adjacent Angles The properties of adjacent angles given below help us identify them easily. Adjacent angles always share a common arm. They share a common vertex. They do not overlap. They have a non-common arm on both sides of the common arm. Two adjacent angles can be supplementary or complementary based on the sum of the measures of the individual angles. How to Find Adjacent Angles? Adjacent angles can be easily identified with the help of two main properties - adjacent angles always share a common side and a common vertex. If any two angles satisfy only one of these properties, they will not be considered adjacent angles. It is necessary for the angles to fulfill both the properties. For example, if any two angles share a common vertex, but they have an angle in between, this means that they are not sharing a common side. Hence, they cannot be adjacent angles. Observe the following figure to identify adjacent angles. Important Notes Here is a list of a few important notes related to the adjacent angles. When two angles are adjacent, then their sum is the angle formed by two non-common arms and one common arm. If a ray stands on a straight line, then the sum of adjacent angles formed is 180°. If the sum of two adjacent angles is 180° then they are called a linear pair of angles. All linear pairs are supplementary because supplementary angles sum up to 180°. However, all supplementary angles need not be linear pairs. To form a linear pair the lines need to intersect each other and must form adjacent angles. If the sum of two adjacent angles is 180° then the non-common arms form a line. ☛Related Articles Check out these interesting articles to know more about Adjacent Angles and their related topics. Adjacent Angles Examples Example 1: List 5 pairs of adjacent angles in the following figure. Solution: Five pairs of adjacent angles are given below. ∠AOE, ∠EOC ∠EOC, ∠COB ∠COB, ∠BOD ∠BOD, ∠AOD ∠AOD, ∠AOE Example 2: Are the angles marked as 1 and 2 in the following figures adjacent? Give reasons for your answers. Solution: Clearly ∠1, ∠2 have a common vertex O and a common arm OB. Therefore, ∠1, ∠2 are adjacent angles. Example 3: State true or false with reference to the properties of adjacent angles. a.) Adjacent angles are always supplementary. b.) Adjacent angles always share a common vertex and a common arm. c.)If two adjacent angles on a straight line are in the ratio 2 : 3, the measure of these angles is 72° and 108° Solution: a.) False, adjacent angles may not always be supplementary. If any two adjacent angles form a straight line together, then they form supplementary adjacent angles. b.) True, adjacent angles always share a common vertex and a common arm. c.)If two adjacent angles on a straight line are in the ratio 2 : 3, the measure of these angles is 72° and 108° View More > go to slidego to slidego to slide Breakdown tough concepts through simple visuals. Math will no longer be a tough subject, especially when you understand the concepts through visualizations. Book a Free Trial Class FAQs on Adjacent Angles Two angles are said to be adjacent angles, if, they have the following characteristics: They share a common vertex. They share a common side or ray. They do not overlap. Can 2 Adjacent Angles be Supplementary? Yes, adjacent angles can be supplementary if they sum up to 180°. Adjacent angles can be defined as two angles that have a common vertex and a common side. Any two adjacent angles can be complementary angles or supplementary angles according to the sum of the measurement of angles. Can Vertical Angles be Adjacent? No, vertical angles can never be adjacent. Adjacent angles are the two angles next to each other while vertical angles are opposite to each other. Give Some Examples of Adjacent Angles in Daily Life. Adjacent angles can be commonly seen in our daily lives. For example, in the steering wheels of the car, the three hands of the clock, two pizza slices that are placed next to each other in the pizza box, and so on. Can 2 Adjacent Angles Overlap? No, adjacent angles can never be one on top of the other, or in other words, the angles cannot overlap. The angles which are placed next to each other on one vertex and share one side are adjacent angles. What do Adjacent Angles Add up to? The sum of two adjacent angles can be either complementary or supplementary based on their measures. If two adjacent angles are placed next to each other on a straight line they will add up to 180° because these will be adjacent supplementary angles. If the adjacent angles do not form linear pairs, they will not add up to 180°. What is the Difference Between Adjacent Angles and Linear Pair of Angles? Adjacent angles may or may not form a straight line together. They just need to fulfill the property that they share a common vertex and a common side. However, linear pair of angles always form a straight line, and hence they always sum up to 180°. How to Identify Adjacent Angles? Adjacent angles can be easily identified with the help of two main properties: Adjacent angles always share a common side. Adjacent angles always share a common vertex. If any two angles satisfy only one of these properties, they will not be considered adjacent angles. It is necessary for the angles to fulfill both the properties. What is the Difference between Adjacent Angles and Vertical Angles? Adjacent angles always share a common vertex and a common side and they do not overlap each other. Vertical angles are the angles that are formed when two lines intersect each other. What are Adjacent Angles in a Parallelogram? Adjacent angles of a parallelogram are those angles that are located next to each other. They are also known as the consecutive angles of the parallelogram. The sum of these adjacent angles of a parallelogram is always 180°. High Impact Tutoring Built By Math Experts Personalized standards-aligned one-on-one math tutoring for schools and districts Request a demo Here you will learn about adjacent angles, including how to identify adjacent angles and examples of adjacent angles. Students will first learn about adjacent angles as part of geometry and measurement and data in 4 th grade. Every week, we teach lessons on adjacent angles to students in schools and districts across the US as part of our online one-on-one math tutoring programs. On this page we've broken down everything we've learnt about teaching this topic effectively. Adjacent angles are two angles that are side by side and share a common vertex and a common side. They are often formed by intersecting lines or line segments. Since an angle is formed when two rays meet at a common endpoint, adjacent angles are simply two angles that are directly next to each other. Adjacent angles can be complementary angles or supplementary angles. For example, in this diagram, angle XWY is adjacent to angle YWZ . They share a common vertex (W) and a common side (ray WY). Test your 4th-grade students' understanding of which angles are adjacent angles and how to identify them. Complete with 15 questions and answers for easy assessment! DOWNLOAD FREE x Test your 4th-grade students' understanding of which angles are adjacent angles and how to identify them. Complete with 15 questions and answers for easy assessment! DOWNLOAD FREE A linear pair is a pair of adjacent angles that combine to form a straight angle. The angles in a linear pair are supplementary angles, meaning their measures add up to 180^{\circ}. Adjacent angles can also be complementary angles. Complementary adjacent angles are angles that add up to 90^{\circ} . Adjacent angles can also be found within the interior angles of polygons. For example, one pair of adjacent angles in the pentagon is angle RQU and angle QUT . How does this relate to 4th grade math? Grade 4 – Geometry (4.G.A.1)Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. Grade 4 – Geometry (4.MD.C.7)Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, for example, by using an equation with a symbol for the unknown angle measure. In order to identify adjacent angles: Recall the definition of adjacent angles. Determine which angles are adjacent and name them. Name the pair of adjacent angles. Recall the definition of adjacent angles. Adjacent angles are two angles that are side by side and share a common vertex and a common side. 2Determine which angles are adjacent and name them. Angle SHG and angle GHV are adjacent angles. Name the acute angle that is adjacent to angle QPE . Recall the definition of adjacent angles. Adjacent angles are two angles that are side by side and share a common vertex and a common side. Determine which angles are adjacent and name them. Angle EPH is adjacent to angle QPE . Name 2 pairs of adjacent angles. Recall the definition of adjacent angles. Adjacent angles are two angles that are side by side and share a common vertex and a common side. Determine which angles are adjacent and name them. Any angles that share a common vertex and a common side are adjacent angles. For example, angle DZC and angle CZO are one pair of adjacent angles. Another pair of adjacent angles is angle CZO and angle OZF . Find two pairs of adjacent angles in the pizza. Recall the definition of adjacent angles. Adjacent angles are two angles that are side by side and share a common vertex and a common side. Determine which angles are adjacent and name them. Any angles that share a common vertex and a common side are adjacent angles. For example, one pair of adjacent angles in the pizza is angle CZD and angle DZE . Another pair of adjacent angles is angle GZH and angle HZA . In order to find a missing angle measure within adjacent angles: Recall the definition of adjacent angles. Determine which angles are adjacent and name them. Subtract the known angle measure from the total angle measure of the adjacent angles. The total angle measure of the adjacent angles is 130^{\circ} . What is the measure of angle XBK? Recall the definition of adjacent angles. Adjacent angles are two angles that are side by side and share a common vertex and a common side. Determine which angles are adjacent and name them. The adjacent angles are angle RBX and angle BXK . Subtract the known angle measure from the total angle measure of the adjacent angles. Total angle measure = 130^{\circ} . Known angle measure (angle RBX) = 50^{\circ} 130^{\circ}-50^{\circ} = 80^{\circ} So the missing angle measure (angle BXK) is 80^{\circ} . A linear pair of angles is a pair of adjacent angles that add up to 180^{\circ} . They are also supplementary angles. What is the measure of angle JUP? Recall the definition of adjacent angles. Adjacent angles are two angles that are side by side and share a common vertex and a common side. Determine which angles are adjacent and name them. The adjacent angles are angle JUP and angle PUL . Subtract the known angle measure from the total angle measure of the adjacent angles. Total angle measure = 180^{\circ} . Known angle measure (angle PUL) = 45^{\circ} 180^{\circ}-45^{\circ} = 135^{\circ} So the missing angle measure (angle JUP) is 135^{\circ} . Use this worksheet to check your 4th grade students' understanding of adjacent angles. 15 questions with answers to identify areas of strength and support! DOWNLOAD FREE x Use this worksheet to check your 4th grade students' understanding of adjacent angles. 15 questions with answers to identify areas of strength and support! DOWNLOAD FREE Providing real-life examples of adjacent angles (either hands-on or on worksheets) to make the concept more relatable and tangible for students. For instance, you can use classroom objects, such as books or desks. Incorporate interactive games or online resources that focus on adjacent angles. There are numerous educational websites and apps that provide interactive activities where students can practice identifying, measuring, and classifying adjacent angles. Overlapping anglesStudents may believe that if two angles overlap partially or fully, they are considered adjacent angles. However, adjacent angles should not overlap; they share a common vertex and a common side but do not intersect.For example, angle MLO is not adjacent to angle MLN since they overlap. Non-adjacent angles on the same line Students may confuse non-adjacent angles on the same line as adjacent angles. It's important to clarify that adjacent angles must have a common vertex and side, meaning they are next to each other.For example, angle ABE and angle DBC are located on the same straight line, but they are not adjacent angles since they are not next to each other. Angle FRY and angle YRN are adjacent angles since they are next to each other without overlapping. Angle BOA is right next to angle COB and they do not overlap, so they are adjacent. Angles AEB and AEC ; angles AEB and BEC Angles CED and CEA ; angles DEA and AEB Angles DEB and BED ; angles AEC and BEC Angles BEC and CED ; angles AEB and BEC One pair of adjacent angles is angle BEC and angle CED . Another pair is angle AEB and angle BEC . These are the only options in the answer choices where each pair of angles does not overlap. Since you know the total measure of the adjacent angles is 90^{\circ} , you can subtract 13^{\circ} from 90^{\circ} . 90^{\circ}-13^{\circ}=77^{\circ} A linear pair is a pair of adjacent angles that combine to form a straight angle. The angles in a linear pair are supplementary angles, meaning their measures add up to 180^{\circ} . To calculate the missing angle, we subtract the known angle from the total angle measure of 180^{\circ} . 180^{\circ}-109^{\circ}=71^{\circ} There are no adjacent angles in this polygon. Angle C and angle D are adjacent angles because they are interior angles in a polygon (specifically a rectangle) that are right next to each other. They are also both right angles. What are adjacent angles? Adjacent angles are two angles that are side by side and share a common vertex and a common side. What are the properties of adjacent angles? The properties of adjacent angles are: ◌ they share a common vertex ◌ they share a common side ◌ they do not overlap ◌ they can be part of a linear pair or have other angle relationships like being complementary or supplementary What is a linear pair of angles? A linear pair is a pair of adjacent angles that combine to form a straight angle. The angles in a linear pair are supplementary angles, meaning their measures add up to 180^{\circ}. When are adjacent angles complementary angles? Adjacent angles are complementary when the sum of their measures is equal to 90^{\circ}. When are adjacent angles supplementary angles? Adjacent angles are supplementary when the sum of their measures is equal to 180^{\circ}. Can vertical angles be adjacent angles? No, vertical angles cannot be adjacent angles. Vertical angles are formed when two lines intersect, and they are opposite to each other. Adjacent angles are next to each other. Parallel angles Triangles 2D shapes Lines At Third Space Learning, we specialize in helping teachers and school leaders to provide personalized math support for more of their students through high-quality, online one-on-one math tutoring delivered by subject experts. Each week, our tutors support thousands of students who are at risk of not meeting their grade-level expectations, and help accelerate their progress and boost their confidence. Find out how we can help your students achieve success with our math tutoring programs. We use essential and non-essential cookies to improve the experience on our website. Please read our Cookies Policy for information on how we use cookies and how to manage or change your cookie settings.AcceptPrivacy & Cookies Policy Adjacent angles are the angles that have a common arm (side) and a common vertex, however, they do not overlap. An angle is formed when two rays meet at a common endpoint and adjacent angles are those angles that are always placed next to each other. When the sum of two adjacent angles is 180° then they are called a linear pair of angles. Let us learn more about adjacent angles and see some adjacent angles examples in this page. What are Adjacent Angles? Two angles are said to be adjacent angles, if, they share a common vertex, a common side and they do not overlap. Observe the following figure to understand what adjacent angles look like. Angle 1 and 2 are adjacent because they have a common side BD and a common vertex B. Adjacent Angles Definition Adjacent angles are those angles that are always placed next to each other in such a way that they share a common vertex and a common side but they do not overlap each other. Adjacent Angles Examples We can see many real-life examples of adjacent angles. Adjacent Angles in Real Life The most common real-life example of adjacent angles can be seen in two pizza slices that are placed next to each other. Another common example can be seen in the clock which shows the hour, minute, and second hand that form adjacent angles when all the 3 are away from each other. We can find 3 adjacent angles in the steering wheel of a car. Properties of Adjacent Angles The properties of adjacent angles given below help us identify them easily. Adjacent angles always share a common arm. They share a common vertex. They do not overlap. They have a non-common arm on both sides of the common arm. Two adjacent angles can be supplementary or complementary based on the sum of the measures of the individual angles. How to Find Adjacent Angles? Adjacent angles can be easily identified with the help of two main properties - adjacent angles always share a common side and a common vertex. If any two angles satisfy only one of these properties, they will not be considered adjacent angles. It is necessary for the angles to fulfill both the properties. For example, if any two angles share a common vertex, but they have an angle in between, this means that they are not sharing a common side. Hence, they cannot be adjacent angles. Observe the following figure to identify adjacent angles. Important Notes Here is a list of a few important notes related to the adjacent angles. When two angles are adjacent, then their sum is the angle formed by two non-common arms and one common arm. If a ray stands on a straight line, then the sum of adjacent angles formed is 180°. If the sum of two adjacent angles is 180° then they are called a linear pair of angles. All linear pairs are supplementary because supplementary angles sum up to 180°. However, all supplementary angles need not be linear pairs. To form a linear pair the lines need to intersect each other and must form adjacent angles. If the sum of two adjacent angles is 180° then the non-common arms form a line. ☛ Related Articles Check out these interesting articles to know more about Adjacent Angles and their related topics. Adjacent Angles Examples Example 1: List 5 pairs of adjacent angles in the following figure. Solution: Five pairs of adjacent angles are given below. ∠AOE, ∠EOC ∠EOC, ∠COB ∠COB, ∠BOD ∠BOD, ∠AOD ∠AOD, ∠AOE Example 2: Are the angles marked as 1 and 2 in the following figures adjacent? Give reasons for your answers. Solution: Clearly ∠1, ∠2 have a common vertex O and a common ray OB. Therefore, ∠1, ∠2 are adjacent angles. Example 3: State true or false with reference to the properties of adjacent angles. a.) Adjacent angles are always supplementary. b.) Adjacent angles always share a common vertex and a common arm. c.)If two adjacent angles on a straight line are in the ratio 2 : 3, the measure of these angles is 72° and 108° Solution: a.) False, adjacent angles may not always be supplementary. If any two adjacent angles form a straight line together, then they form supplementary adjacent angles. b.) True, adjacent angles always share a common vertex and a common arm. c.)If two adjacent angles on a straight line are in the ratio 2 : 3, the measure of these angles is 72° and 108° View More > go to slidego to slidego to slide Breakdown tough concepts through simple visuals. Math will no longer be a tough subject, especially when you understand the concepts through visualizations. Book a Free Trial Class FAQs on Adjacent Angles Two angles are said to be adjacent angles, if, they have the following characteristics: They share a common vertex. They share a common side or ray. They do not overlap. Can 2 Adjacent Angles be Supplementary? Yes, adjacent angles can be supplementary if they sum up to 180°. Adjacent angles can be defined as two angles that have a common vertex and a common side. Any two adjacent angles can be complementary angles or supplementary angles according to the sum of the measurement of angles. Can Vertical Angles be Adjacent? No, vertical angles can never be adjacent. Adjacent angles are the two angles next to each other while vertical angles are opposite to each other. Give Some Examples of Adjacent Angles in Daily Life. Adjacent angles can be commonly seen in our daily lives. For example, in the steering wheels of the car, the three hands of the clock, two pizza slices that are placed next to each other in the pizza box, and so on. Can 2 Adjacent Angles Overlap? No, adjacent angles can never be one on top of the other, or in other words, the angles cannot overlap. The angles which are placed next to each other on one vertex and share one side are adjacent angles. What do Adjacent Angles Add up to? The sum of two adjacent angles can be either complementary or supplementary based on their measures. If two adjacent angles are placed next to each other on a straight line they will add up to 180° because these will be adjacent supplementary angles. If the adjacent angles do not form linear pairs, they will not add up to 180°. What is the Difference Between Adjacent Angles and Linear Pair of Angles? Adjacent angles may or may not form a straight line together. They just need to fulfill the property that they share a common vertex and a common side. However, linear pair of angles always form a straight line, and hence they always sum up to 180°. How to Identify Adjacent Angles? Adjacent angles can be easily identified with the help of two main properties: Adjacent angles always share a common side. Adjacent angles always share a common vertex. If any two angles satisfy only one of these properties, they will not be considered adjacent angles. It is necessary for the angles to fulfill both the properties. What is the Difference between Adjacent Angles and Vertical Angles? Adjacent angles always share a common vertex and a common side and they do not overlap each other. Vertical angles are the angles that are formed when two lines intersect each other. What are Adjacent Angles in a Parallelogram? Adjacent angles of a parallelogram are those angles that are located next to each other. They are also known as the consecutive angles of the parallelogram. The sum of these adjacent angles of a parallelogram is always 180°. Written by January 11, 2023Fact-checked by Paul MazzolaDefinitionParallel lines and transversalsExamplesAdjacent angles are a pair of angles that share a common side and vertex.Three features make adjacent angles easy to pick out:Adjacent angles exist as pairsThey share a common vertexThey share a common sideAdjacent angles definitionIf the two angles only share a common vertex, then they are vertical angles. Vertical angles are a pair of opposite angles made by two intersecting lines.A common vertex is a vertex that is shared by two angles. A vertex is the point at the intersection of any two linear constructions.You can mix and match these to create vertices (the plural of vertex) in many ways:What is a common side in geometryYou see vertices in the corners of polygons, as central angles in circles, and when linear constructions, like parallel lines and transversals, cross.A common side is one line, ray, or line segment used to create two angles sharing the same vertex. Both angles use the common side and one other side.What is a common side in geometryAdjacent angles are always pairs and never overlap.Let's see how one vertex of a square can demonstrate adjacent angles.Here we have a simple square formed by four sides creating four vertices: ∠W, ∠H, ∠I, and ∠Z.Common side of adjacent angles exampleIf we connect Point W with Point I, we construct diagonal WI. This creates two additional angles at Point W:Notice both those angles share a common vertex at Point W, and a common side, line segment WI. Angles ∠ZWI and ∠HWI are adjacent angles.Get free estimates from geometry tutors near you.Linear pairs When a pair of adjacent angles create a straight line or straight angle, they are a linear pair. The sum of their angles is 180° or π radians.Angles that sum to 180° are called supplementary angles. Here is a linear pair. See if you can identify the common side and common vertex:Adjacent angles creating linear pairRay AT is the common ray of both angles. Did you identify ∠A as the common vertex?Parallel lines and transversalsHere are parallel lines CP and MN cut by transversal IK. Where the transversal cuts across them, we have points H and U:Parallel lines and a transversalNot only does this construction form eight pairs of angles (adjacent angles), but all those pairs are also linear pairs! Which angles are adjacent angles?∠CHI and ∠PHI∠CHI and ∠CHU∠PHI and ∠PHU∠CHU and ∠PHU∠MUK and ∠NUK∠MUH and ∠NUH∠MUH and ∠MUK∠NUH and ∠NUKThese are all examples of adjacent angles. Adjacent angles can help prove that lines are parallel.Adjacent angles exampleMay 12 is the birthday of Maryam Mirzakhani, a famous mathematician who studied a special kind of geometry called hyperbolic geometry. To celebrate her work, your math club bakes a birthday cake and puts you in charge of slicing it into eighths:Adjacent angles examplesAre all the angles of Maryam's cake adjacent angles?Well, no. ∠IMY is adjacent to both ∠RMI and ∠YMN, but notice that ∠RMI is not adjacent to ∠YMN, even if both angles share vertex M.Angle relationships like adjacent angles must share both a common vertex (Point M) and a common side. ∠RMI shares no common side with ∠YMN.Can you find any linear pairs in Maryam's cake? We hope so! For each diameter of Maryam's cake, three linear pairs exist!To see that, we can take just one line segment, YA, as an example. You can create the straight line YA with these three linear pairs:∠YMI and ∠IMA∠YMR and ∠RMA∠YMZ and ∠ZMAAdjacent angles are two angles sharing a common vertex and a common side. They appear in many places but are prominent in parallel lines cut by transversals. Supplementary angles are adjacent angles which add up to 180 degrees (or π radians) when combined. Supplementary angles are simple to identify visually because because they will all intersect at a line segment which cuts straight across. Another way to think of it is that a perfectly straight angle on a piece of paper, such as the radius of a circle, will always have a value of 180 degrees. Therefore, any adjacent angles contained within that 180 degree sweep will necessarily have to add up to 180. 2. Complementary Angles Complementary angles are very similar to supplementary angles but add up to 90 degrees instead of 180. As such, these adjacent angles must be contained within a "square" angle of 90 degrees (.5π radians). Complementary angles can be a bit trickier to identify visually because values like 92 degrees or 88 degrees may still look square to the naked eye. Generally, while doing geometry problems, your instructor or textbook writer will include an indicator to show when an angle is exactly 90 degrees. In many textbooks, as well as engineering documents, 90-degree corners are called out using a small square icon (rather than a curved arc) inside the angle. 3. Vertical Angles Vertical angles can be thought of as two sets of supplementary angles which are considered adjacent angles to each other. Therefore, they add up to a full 360 degrees (2π radians). To identify vertical angles visually, you can try drawing a full circle around them with a compass. If the circle is able to connect with every segment, you're probably dealing with vertical angles. The simplest vertical angles are just two lines which intersect straight through each other, creating four linear pairs of discrete angles which add up to 360. Any number of angles can be added inside these segments, complicating the calculation process. However, the sum will always be 360 no matter how many adjacent angles are involved. Other Adjacent Angles Examples Supplementary angles, complementary angles and vertical angles are all useful in studying geometry because they can be identified visually by the student or worker. However, there is no rule stating that adjacent angles have to fit into those three categories. These examples of adjacent angles will add up to values other than 90, 180 or 360 degrees. Generally, if you are required to calculate other types of adjacent angles, your instructor or textbook will tell you the total sum so that you can use that value to calculate any unknown angles. Otherwise, you'll need a manual tool such as a protractor to measure the exact value. Two angles that share a common side and a common vertex (but do not overlap) are called adjacent angles. One angle should not be in the interior of the other angle. An angle is formed when two rays meet at a common endpoint. The common point of contact is called the vertex of an angle. Adjacent Meaning in Math: When two things are placed right next to each other, we say they are "adjacent." In mathematics, when we use terms such as adjacent angles, adjacent sides, etc, it means "adjoining" or "side-by-side." Simply put, adjacent angles are angles lying next to each other. Adjacent Angles example: Angles $\angle a$ and $\angle b$ form a pair of adjacent angles. Adjacent angles are two angles that share a common side and a common vertex, and do not overlap. In the given diagram, the angles $\angle ABD$ and $\angle CBD$ are adjacent angles. They share the common arm or common side BD and a common vertex B. More Worksheets Adjacent angles share a common side (arm). Adjacent angles share a common vertex. Adjacent angles do not overlap. Adjacent angles have a non-common arm on both sides of the common arm. Adjacent angles do not have a common interior point. The presence of a common side and a common vertex is the simplest way to identify an adjacent angle. If two angles share one common side and both can be derived from the same vertex point, then they are adjacent angles. It is important to remember that adjacent angles must have BOTH a common side and a common vertex. Let's see some examples and non-examples. Example 1: Angles 1 and 2 are adjacent angles. Example 2: In the given diagram, the angles 1 and 2 are not adjacent. Angles 1 and 2 are angles that share one side but not a common vertex. Adjacent angles share a common vertex and a side. Angles are not adjacent when they only share a common vertex but not a side. Angles are not adjacent when they only share a common side, but not a vertex. Angles are not adjacent when angles overlap. In the diagram below, $\angle c$ and $\angle d$ are adjacent angles. $\angle x$ and $\angle y$ are not adjacent because they do not share a common side and a common vertex. $\angle a$ and $\angle b$ are not adjacent since $\angle a$ is in the interior of the $\angle b$. Here, $\angle b$ overlaps $\angle a$. When two lines intersect, the opposite angles formed are called vertical angles. Vertical angles are also called vertically opposite angles. Let's understand the difference between adjacent angles and vertical angles. Adjacent AnglesVertical AnglesAdjacent angles share a common vertex and a common side.Vertical angles only share a common vertex.These angles are adjoining. They lie exactly next to each other.These angles lie exactly opposite each other.Adjacent angles need not be congruent.Vertical angles are always congruent. Angles forming a linear pair are always adjacent. If the sum of two adjacent angles is 90 degrees, they are complementary to each other. However, angles need not be adjacent to be complimentary. If the sum of two adjacent angles is 180 degrees, they are supplementary to each other. However, angles need not be adjacent to be supplementary. Angles forming a linear pair are always adjacent.If the sum of two adjacent angles is 90 degrees, they are complementary to each other. However, angles need not be adjacent to be complimentary.If the sum of two adjacent angles is 180 degrees, they are supplementary to each other. However, angles need not be adjacent to be supplementary. In this article, we learned about adjacent angles. We came to know about the properties, differences from other types of angles. We also solved some practice problems to understand the concept better. 1. Look at the hands of the given clock. Do they form a pair of adjacent angles? Solution: The hands of a clock form a pair of adjacent angles. The second hand represents the common arm. One angle is formed by a minute hand and a second hand. The other angle is formed by the second hand and the hour hand. We can draw it as shown below. 2. Are the angles marked A and B in the following figures adjacent? Support your answers with reasons. Solution: $\angle A$ and $\angle B$ have a common vertex O and a common arm. So, $\angle A$ and $\angle B$ are adjacent angles. 3. Which angles are adjacent angles to $\angle BOC$? Solution: We know that adjacent angles share a common vertex and a common side. $\angle AOB$ is adjacent to $\angle BOC$ with common vertex O and common arm OB. $\angle COD$ is adjacent to $\angle BOC$ with common vertex O and common arm OC. 4. Observe the given diagram. Which angles are adjacent angles? Solution: Angles 1 and 2 are adjacent. Angles 2 and 3 are adjacent. Angles 2 and 3 are adjacent. Also, observe that the angle formed by combining the angles 1 and 2 together is adjacent to angle 3. Angle formed by combining angles 2 and 3 together is adjacent to angle 1. 5. Name the pairs of adjacent angles. Solution: We know that adjacent angles share a common vertex and side. The pair of adjacent angles are: $\angle 1$ and $\angle 2$ $\angle 2$ and $\angle 3$ $\angle 3$ and $\angle 4$ $\angle 4$ and $\angle 5$ $\angle 5$ and $\angle 6$ $\angle 1$ and $\angle 6$ Attend this quiz & Test your knowledgeCorrect answer is: BothAdjacent angles share a common vertex and a common side.Correct answer is: nonadjacent anglesAngles a and b are nonadjacent angles since they only share a common side and not a common vertex.Correct answer is: All of the above$\angle AOB$ is adjacent with $\angle BOC$, $\angle AOE$, and $\angle BOD$. It shares a common arm and a common vertex with each of these angles.Correct answer is: vertexVertical angles share a common vertex but not a common side.Both $\angle 2$ and $\angle 4$Correct answer is: Both $\angle 2$ and $\angle 4$The angles adjacent angles to $\angle 1$ are $\angle 2$ and $\angle 4$.$\angle ECB$ and $\angle DCE$$\angle BCD$ and $\angle BCE$$\angle 1$ and $\angle 2$$\angle ACE$ and $\angle BCE$Correct answer is: $\angle BCD$ and $\angle BCE$$\angle BCD$ and $\angle BCE$ are not adjacent since $\angle BCD$ overlaps $\angle BCE$. Can vertical angles ever be adjacent? No, vertical angles can never be adjacent. Vertical angles only share a common vertex while being the opposite of one another. Adjacent angles are the ones next to each other, sharing common vertex and side, while vertical angles are opposite from each other. Are the angles forming a linear pair adjacent angles? Angles forming a linear pair are always adjacent to each other. What are the angles formed by two intersecting lines? When two lines intersect, they form different types of angles such as vertical angles, adjacent angles, angles in linear pairs. Can two adjacent angles overlap? No, adjacent angles never overlap. If one angle is contained in another, then the two angles are not adjacent. It is one of the major properties of adjacent angles. Do adjacent angles add up to 180 degrees? Adjacent angles need not add up to 180 degrees. The sum of adjacent angles will be 180 degrees if and only if they form a linear pair. plural noun (1)two angles having the same vertex and having a common side between them.two angles that have the same vertex and a side in common"Collins English Dictionary — Complete & Unabridged" 2012 Digital Edition © William Collins Sons & Co. Ltd. 1979, 1986 © HarperCollins Publishers 1998, 2000, 2003, 2005, 2006, 2007, 2009, 2012Examples have not been reviewed."The fact that it's a hexagon, we did algebra and geometry, we cut along the hypotenuse to create the roof panels, we talked about opposite adjacent angles and all that stuff. So it was just some math concepts. And then we put it together, and we had a really cool structure."Definition 10 says, "When a straight line set up on a straight line makes the adjacent angles equal to one another, each of the equal angles is right, and the straight line standing on the other is called a perpendicular to that on which it stands."Some of these terms, such as magnitudes, curve line, broken line, curvilinear figure, bisector, adjacent angles, reflex angles, oblique angles and lines, and vertical angles, need merely a word of explanation so that they may be used intelligently.It might well be further reduced, since it includes the proposition about two adjacent angles formed by one line meeting another, and the one about the circle as the limit of the inscribed and circumscribed regular polygons.When a straight line set up on a straight line makes the adjacent angles equal to one another, each of the equal angles is right, and the straight line standing on the other is called a perpendicular to that on which it stands.adjacent angleadjectivalBrowse#aabbccddeeffgghhiijjkkllmmnnooppqqrrssttuuvvwwxxyyzzAboutCareersContact usCookies, terms, & privacyHelpFollow usGet the Word of the Day every day!© 2025 Dictionary.com, LLC Two angles that share a common side and a common vertex (but do not overlap) are called adjacent angles. One angle should not be in the interior of the other angle. An angle is formed when two rays meet at a common endpoint. The common point of contact is called the vertex of an angle. Adjacent Meaning in Math: When two things are placed right next to each other, we say they are "adjacent." In mathematics, when we use terms such as adjacent angles, adjacent sides, etc, it means "adjoining" or "side-by-side." Simply put, adjacent angles are angles lying next to each other. Adjacent Angles example: Angles $\angle a$ and $\angle b$ form a pair of adjacent angles. Adjacent angles are two angles that share a common side and a common vertex, and do not overlap. In the given diagram, the angles $\angle ABD$ and $\angle CBD$ are adjacent angles. They share the common arm or common side BD and a common vertex B. More Worksheets Adjacent angles share a common side (arm). Adjacent angles share a common vertex. Adjacent angles do not overlap. Adjacent angles have a non-common arm on both sides of the common arm. Adjacent angles do not have a common interior point. The presence of a common side and a common vertex is the simplest way to identify an adjacent angle. If two angles share one common side and both can be derived from the same vertex point, then they are adjacent angles. It is important to remember that adjacent angles must have BOTH a common side and a common vertex. Let's see some examples and non-examples. Example 1: Angles 1 and 2 are adjacent angles. Example 2: In the given diagram, the angles 1 and 2 are not adjacent. Angles 1 and 2 are angles that share one side but not a common vertex. Adjacent angles share a common vertex and a side. Angles are not adjacent when they only share a common vertex but not a side. Angles are not adjacent when they only share a common side, but not a vertex. Angles are not adjacent when angles overlap. In the diagram below, $\angle c$ and $\angle d$ are adjacent angles. $\angle x$ and $\angle y$ are not adjacent because they do not share a common side and a common vertex. $\angle a$ and $\angle b$ are not adjacent since $\angle a$ is in the interior of the $\angle b$. Here, $\angle b$ overlaps $\angle a$. When two lines intersect, the opposite angles formed are called vertical angles. Vertical angles are also called vertically opposite angles. Let's understand the difference between adjacent angles and vertical angles. Adjacent AnglesVertical AnglesAdjacent angles share a common vertex and a common side.Vertical angles only share a common vertex.These angles are adjoining. They lie exactly next to each other.These angles lie exactly opposite each other.Adjacent angles need not be congruent.Vertical angles are always congruent. Angles forming a linear pair are always adjacent. If the sum of two adjacent angles is 90 degrees, they are complementary to each other. However, angles need not be adjacent to be complimentary. If the sum of two adjacent angles is 180 degrees, they are supplementary to each other. However, angles need not be adjacent to be supplementary. Angles forming a linear pair are always adjacent.If the sum of two adjacent angles is 90 degrees, they are complementary to each other. However, angles need not be adjacent to be complimentary.If the sum of two adjacent angles is 180 degrees, they are supplementary to each other. However, angles need not be adjacent to be supplementary. In this article, we learned about adjacent angles. We came to know about the properties, differences from other types of angles. We also solved some practice problems to understand the concept better. 1. Look at the hands of the given clock. Do they form a pair of adjacent angles? Solution: The hands of a clock form a pair of adjacent angles. The second hand represents the common arm. One angle is formed by a minute hand and a second hand. The other angle is formed by the second hand and the hour hand. We can draw it as shown below. 2. Are the angles marked A and B in the following figures adjacent? Support your answers with reasons. Solution: $\angle A$ and $\angle B$ have a common vertex O and a common arm. So, $\angle A$ and $\angle B$ are adjacent angles. 3. Which angles are adjacent angles to $\angle BOC$? Solution: We know that adjacent angles share a common vertex and a common side. $\angle AOB$ is adjacent to $\angle BOC$ with common vertex O and common arm OB. $\angle COD$ is adjacent to $\angle BOC$ with common vertex O and common arm OC. 4. Observe the given diagram. Which angles are adjacent angles? Solution: Angles 1 and 2 are adjacent. Angles 2 and 3 are adjacent. Angles 2 and 3 are adjacent. Also, observe that the angle formed by combining the angles 1 and 2 together is adjacent to angle 3. Angle formed by combining angles 2 and 3 together is adjacent to angle 1. 5. Name the pairs of adjacent angles. 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