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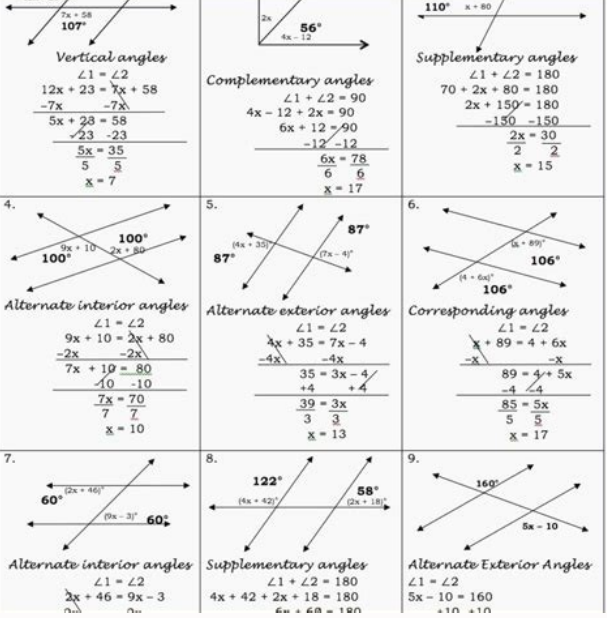

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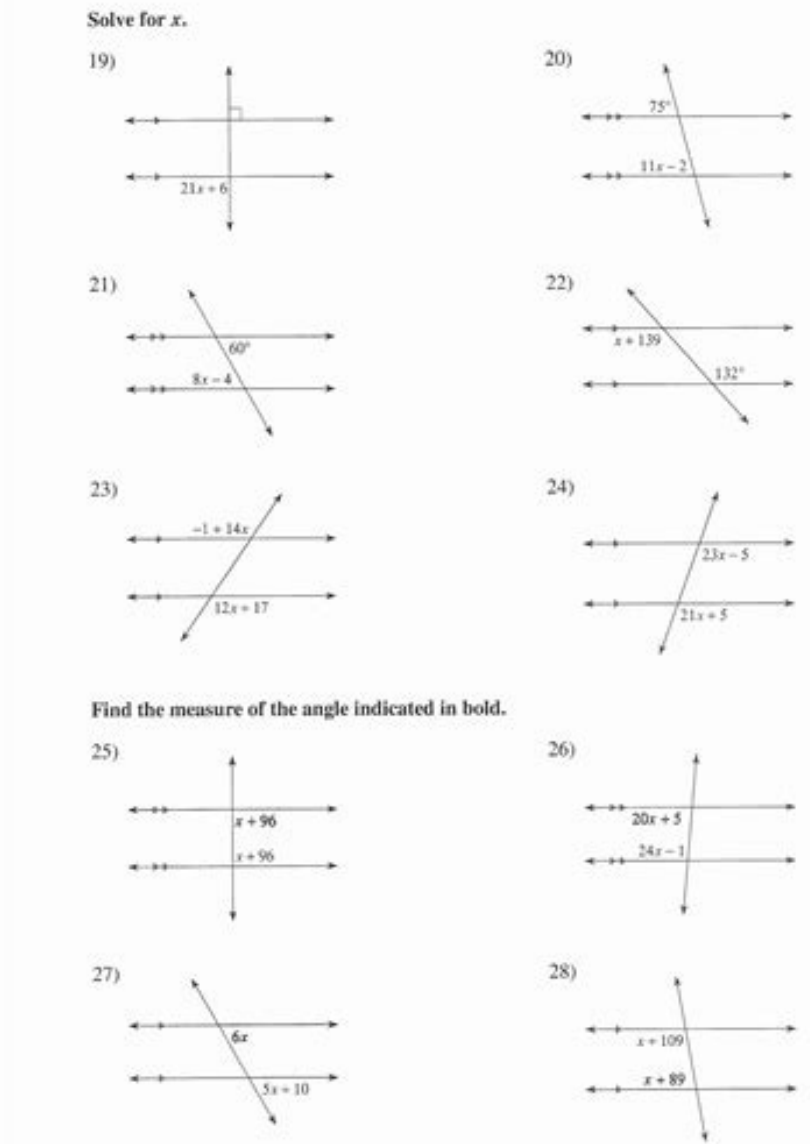
Parallel lines and transversals worksheet answers geometry

Ch3 sections 3 and 4 worksheet on parallel lines and transversals geometry answers. Geometry worksheet angles formed parallel lines and transversals answers. Parallel lines & transversals worksheet answer key. Geometry unit 2 parallel lines and transversals worksheet answers. Kuta software - infinite geometry parallel lines and transversals worksheet answers. 3.2 parallel lines and transversals worksheet answers geometry. 3-1 parallel lines and transversals worksheet answers glencoe geometry. Parallel lines worksheet answers. Parallel lines and transversals worksheet answer.

Live worksheets > inglés > Math > Geometry > Parallel Lines and Transversal ¡Terminado! Por favor, permite el acceso al micrófono Mira en la parte alta de tu navegador. Si ves un mensaje pidiendo tu permiso para acceder al micrófono, por favor permítelo. Cerrar Written By Keerthi Kulkarni Last Modified 17-01-2023 Two lines that do not intersect each other at any point are called parallel lines and transversal is the line that intersects both the parallel lines at distinct points. There are different pairs of angles formed when a transversal intersects two parallel lines. They are corresponding angles, alternate angles etc.



In this article, we shall discuss the different angles formed by a transversal on parallel lines. Definition of Parallel Lines and Transversal Parallel lines are the lines that never intersect (cut) or meet each other at any point. Parallel lines lie on the same plane. In another way, the lines which touch each other at infinity are called parallel lines. When the distance between a pair of lines is always the same, then we can say the lines are parallel lines. The parallel lines are always equidistant from each other. The symbol for "parallel to" used is $\parallel$. Parallel lines in different directions like horizontally, vertically and diagonally are possible. The angle between parallel lines is zero. The slope of parallel lines is equal. Some of the examples of parallel lines are roadways, tracks etc. In a Euclidean plane, the line, which intersects two or more lines at distinct points is called a transversal. The lines which are intersected by a transversal are maybe or may not be parallel. In the image given below, the dotted line intersecting the two lines is called a transversal. Construction of Transversal to the given parallel lines is very easy. 1. First, draw any two parallel lines 2. Construct an angle (say $\angle x$), where we want to construct transversal. 3. Then, extend the line further, which intersects the other parallel line.



There are 8 angles formed when a transversal intersects two or more lines. The different types of pair of angles, thus formed, are: Corresponding angles, Alternate interior angles, Alternate exterior angles, Vertically opposite angles, Co-interior angles, Co-exterior angles. When the transversal intersects the two parallel lines, then the inside portion of the region between two parallel lines is known as interior, which is shown below: The region outside of the lines or outer portion of two lines is known as the exterior, which is shown below: The eight angles are formed by a transversal with two parallel lines are labelled with numbers 1, 2, 3, 4, 5, 6, 7, 8, as shown above. When the transversal intersects the two parallel lines, the angles formed at the matching or same corners are known as corresponding angles. The corresponding angles formed by a transversal are shown below: We know that the corresponding angles formed by a transversal with two parallel lines are the same. In the above figure, $\angle 1 = \angle 5$, $\angle 3 = \angle 7$, $\angle 4 = \angle 8$, and $\angle 2 = \angle 6$ are the pair of corresponding angles. Alternate Interior Angles The interior angles, which are formed on either side of the transversal, are known as alternate interior angles. The below figure shows the alternate interior angles formed when the transversal intersects the two parallel lines. When the transversal intersects the two parallel lines, the pair of alternate interior angles formed are equal. In the above figure, the pair of alternate interior angles $\angle 4$, $\angle 5$ and $\angle 3$, $\angle 6$ are equal. $\angle 4 = \angle 5$ and $\angle 3 = \angle 6$. Alternate Exterior Angles Alternate exterior angles are the pair of angles that lie on the outside of the two parallel lines but on either side of the transversal line. The pair of alternate exterior angles formed by a transversal with two parallel lines are equal in measure. In the above figure, the pair of alternate exterior angles $\angle 2$, $\angle 7$ and $\angle 1$, $\angle 8$ are equal. $\angle 2 = \angle 7$ and $\angle 1 = \angle 8$. Co-Interior Angles The angles, which lie inside and on the same side of the transversal, are called co-interior angles. The pair of co-interior angles or the angles on the same side of the transversal are supplementary. The sum of the angles on the same side of the Transversal (Co-Interior angles) is 180° . In the above figure, the co-interior angles $\angle 4$, $\angle 6$ and $\angle 3$, $\angle 5$ are supplementary. $\angle 4 + \angle 6 = 180^\circ$ and $\angle 3 + \angle 5 = 180^\circ$. Co-Exterior Angles The angles, which lie outside and on the same side of the transversal, are called co-exterior angles. The pair of co-exterior angles or the angles on the same side of the transversal are supplementary. The sum of the angles on the same side of the Transversal (Co-exterior angles) is 180° . In the above figure, the co-exterior angles $\angle 2$, $\angle 8$ and $\angle 1$, $\angle 7$ are supplementary. $\angle 2 + \angle 8 = 180^\circ$ and $\angle 1 + \angle 7 = 180^\circ$. Vertically Opposite Angles The opposite angles formed when two lines cross (intersect) each other. There is a total of four pairs of vertically opposite angles. The pair of vertically opposite angles formed when a transversal intersects two parallel lines are equal. In the above figure, the pair of vertically opposite angles are $\angle 1$, $\angle 4$, $\angle 2$, $\angle 3$, $\angle 6$, $\angle 7$ and $\angle 5$, $\angle 8$. The pair of vertically opposite angles are equal in measures. $\angle 1 = \angle 4$, $\angle 2 = \angle 3$, $\angle 6 = \angle 7$ and $\angle 5 = \angle 8$. Facts and Properties of Parallel Lines and Transversal When a transversal line intersects two parallel lines, there are eight angles formed. All these angles have some properties, which are discussed below: The pair of corresponding angles are equal. Example: $\angle 1 = \angle 5$, $\angle 3 = \angle 7$. The alternate interior angles are equal. Example: $\angle 4 = \angle 5$. The co-interior angles are supplementary. Example: $\angle 4 + \angle 6 = 180^\circ$. The co-exterior angles are supplementary. Example: $\angle 2 + \angle 8 = 180^\circ$. Vertically opposite angles are equal. Example: $\angle 5 = \angle 8$. When a transversal line intersects any two lines at distinct points, we get a total of eight angles. Based on the measurement of angle, we have some theorems to describe the given lines are parallel or not?. The theorems of parallel lines and transversal are given below: If any pair of corresponding angles formed by a transversal with the two lines are equal, then the given lines are parallel lines. If any pair of alternate exterior angles formed by a transversal with the two lines are equal, then the given lines are parallel lines. If the sum of any pair of interior angles on the same side of the transversal formed by a transversal with the two lines is equal; then, the given lines are parallel lines. The sum of any pair of exterior angles on the same side of the transversal formed by a transversal with the two lines are equal; then, the given lines are parallel lines. Solved Examples - Parallel Lines and Transversal Practice Problems Q.1. $AB \parallel CD$ and EH is the transversal, making angles as shown in the below figure, find the value of x . Ans: Given: $AB \parallel CD$, and EH is the transversal. $\angle EFB = (3x - 120)^\circ$ and $\angle DGF = (x + 48)^\circ$. Here, angles $\angle EFB$ and $\angle DGF$ are the corresponding angles. We know that the pair of corresponding angles formed by a transversal with two parallel lines are equal. $\angle EFB = \angle DGF$ $(3x - 120)^\circ = (x + 48)^\circ$ $3x - 120 = x + 48$ $3x - x = 48 + 120$ $2x = 168$ $x = \frac{168}{2}$ $x = 84$ Therefore, the value of x is 84. Q.2. Find the value of x , as shown in the given parallel lines and transversal. Ans: Given angles, $\angle B$ and $\angle C$ are corresponding angles. We know that pair of corresponding angles formed by a transversal with two parallel lines are equal. $\angle B = \angle C$ $2x + 8^\circ = 60^\circ$ $2x = 60^\circ - 8^\circ$ $2x = 52^\circ$ $x = \frac{52^\circ}{2}$ $x = 26^\circ$ Hence, the value of x is 26° . Q.3. In the given figure below, check the given lines are parallel or not? Ans: In the given figure, angles $\angle x$ and $\angle 123^\circ$ are adjacent angles on the straight line. The sum of the angles on the straight line is 180° . $x + 123^\circ = 180^\circ$ $x = 180^\circ - 123^\circ$ $x = 57^\circ$ Here, the values of $x = 57^\circ$ and $\angle ABC = 57^\circ$. They are equal and also known as corresponding angles. Two lines are said to be parallel if the corresponding angles formed by a transversal are equal. Hence, the given lines are parallel. Q.4. Given lines l_1 and l_2 are parallel lines, and t is the transversal. Find the value of x . Ans: Given lines l_1 and l_2 are parallel lines, and t is the transversal. Here, angles $2x^\circ$, $(3x + 20)^\circ$ are the co-interior angles. We know that co-interior angles (angles on the same side of the transversal) are supplementary. $2x^\circ + (3x + 20)^\circ = 180^\circ$ $2x + 3x + 20 = 180$ $5x = 160$ $x = \frac{160}{5}$ $x = 32$ Q.5. For the given parallel lines, find the value of x . Ans: Given, lines a , b are parallel. Here, $(3x + 16)^\circ$ and $(4x - 19)^\circ$ are the alternate interior angles. We know that pair of alternate interior angles are equal. $(3x + 16)^\circ = (4x - 19)^\circ$ $3x + 16 = 4x - 19$ $3x - 4x = -19 - 16$ $-x = -35$ $x = 35$ Hence, the value of x is 35° . In this article, we discussed the parallel lines, which do not intersect each other. And the transversal, which intersects two or more lines. Here, we also studied the different types of angles formed by the transversal with the parallel lines and the relation between the angles so formed. We have discussed the properties of the parallel lines and transversal, which helps in solving the problems. Theorems of parallel lines were also discussed here, which help us find if the given lines are parallel or not. FAQs Q.1. Are vertical angles formed by a transversal equal? Ans: When a transversal intersects with two parallel lines, there is four pair of vertically opposite angles formed. The pair of vertically opposite angles are always equal. Q.2. What are the parallel lines and transversal? Explain with an example? Ans: Parallel lines are the lines, which never intersect (cut) or meet each other at any point. The line, which intersects the two or more lines is called a transversal. Example: The railway tracks, ladder, edges of side-walks, etc. Q.3. What are the rules of transversal? Ans: If a transversal intersects two parallel lines, then 1. Corresponding angles are equal. 2. Alternate angles (interior and exterior) are equal. 3. Co-interior and exterior angles are supplementary. Q.4. How many angles are there in a transversal line? Ans: When a transversal line intersects two parallel lines, there are a total of eight angles formed. Q.5. How do you find the parallel lines? Ans: When any lines are not touching each other at any point, and the distance between the lines is the same, then these lines are called parallel lines. We hope you find this article on Parallel Lines and Transversal helpful. In case of any queries, you can reach back to us in the comments section, and we will try to solve them. This worksheet explains how to determine the angle of a transversal. A sample problem is solved. This worksheet reviews how to determine the angle of a transversal. A sample problem is solved, and two practice problems are provided. Students will determine the angle of a transversal. Ten descriptions are provided. Given drawings, students will determine the angle of a transversal. Ten problems are provided. Students will determine the angle of a transversal. Eight problems are provided. Students will find the transversals across parallel lines. Three problems are provided. Students will find the transversals. Ten problems are provided. Where the heck are all the transversals? Find where they meet up and get them dinner. I wish I would have found where those are missing and where they hook up. Students will become proficient in finding transversals.