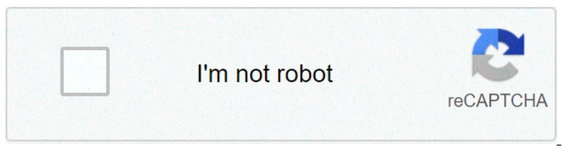

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Exterior and interior angles of a triangle worksheet answers pdf

Level 4-5 Rule: The exterior angle = \dfrac{360\degree}{\textcolor{red}{n}} where \textcolor{red}{n} is the number of sides. The sum of all the exterior angles will equal 360\degree. For the triangle shown, we can see it has \textcolor{red}{3} sides, so to calculate an exterior angle we do: \dfrac{360\degree}{\textcolor{red}{3}} = 120\degree Rule: Sum of interior angles = (\textcolor{red}{n} - 2) \times 180\degree Where \textcolor{red}{n} is the number of sides. To find the sum of the interior angles for the triangle shown we do the following: (\textcolor{red}{3} - 2) \times 180\degree = 180\degree This means that \textcolor{limegreen}{a} + \textcolor{limegreen}{b} + \textcolor{limegreen}{c} = 180\degree Note: You can find the interior angle of a regular polygon by dividing the sum of the angles by the number of angles. You can also find the exterior angle first then minus from 180\degree to get the interior angle. ABCD is a quadrilateral. Find the missing angle marked x. [2 marks] This is a 4-sided shape, to work out the interior angles we calculate the following: (\textcolor{red}{n}-2)\times 180 =360\degree. Next we can work out the size of \angle CDB as angles on a straight line add up to 180\degree. 180 - 121 = 59\degree Now we know the other 3 interior angles, we get that x = 360 - 84 - 100 - 59 = 117\degree This shape has 5 sides, so its interior angles add up to, 180 \times (5 - 2) = 540\degree Hence each interior angle is, x\degree=540\degree \div 5 = 108\degree This shape has 8 sides, so its interior angles add up to, 180 \times (8 - 2) = 1080\degree Hence each interior angle is, x\degree=1080\degree \div 8 = 135\degree This shape has 5 sides, so its interior angles must add up to 180 \times (5 - 2) = 540\degree. We can't find this solution with one calculation as we did previously, but we can express the statement "the interior angles add up to 540" as an equation. This looks like 33 + 140 + 2x + x + (x + 75) = 540 Now, this is a linear equation we can solve. Collecting like terms on the left-hand side, we get 4x + 248 = 540. Subtract 248 from both sides to get 4x = 292. Finally, divide by 4 to get the answer: x = 292 \div 4 = 73\degree This shape has 4 sides, so its interior angles add up to 180 \times (4 - 2) = 360\degree. We don't have any way of expression two of the interior angles at the moment, but we do have their associated exterior angles, and we know that interior plus exterior equals 180. So, we get \text{interior angle CDB } = 180 - (y + 48) = 132 - y Furthermore, we get \text{interior angle CAB } = 180 - 68 = 112 Now we have figures/expressions for each interior angle, so we write the sum of them equal to 360 in equation form: 112 + 90 + 2y + (132 - y) = 360 Collecting like terms on the left-hand side, we get y + 334 = 360 Then, if we subtract 334 from both sides we get the answer to be y = 360 - 334 = 26\degree. In order to continue enjoying our site, we ask that you confirm your identity as a human. Thank you very much for your cooperation. This Triangle Worksheet will produce triangle angle sum problems. You can choose between interior and exterior angles, as well as an algebraic expression for the unknown angle. This worksheet is a great resource for the 5th, 6th Grade, 7th Grade, and 8th Grade. Click here for More Triangle Worksheets The Exterior Angle Theorem is not so bad and it's a very good shortcut to finding the measure of an exterior angle. So, what is an exterior angle? An exterior angle is when a line is drawn outside of the triangle, extending the angle. The exterior angle is \(\angle {\text{ACD}}\). All the angles inside the triangle are interior angles. A little side note: the exterior angle and the adjacent interior angle (the one connected to it) always add up to 180° because together they form a line. The Exterior Angle Theorem says that an exterior angle of a triangle is equal to the sum of the 2 non-adjacent interior angles. Taking our above example, \(\angle {\text{ACD}}\) would equal whatever \(\angle {\text{A}}\) + \(\angle {\text{B}}\) equaled because those are the two angles NOT connected to the exterior angle. Let's try two fairly basic examples and then try a few tougher ones. Example 1: What would \(\angle {\text{DFG}}\) measure? \(\angle {\text{DFG }} = \angle {\text{D }} + \angle {\text{E}}\) \(\angle {\text{DFG }} = {\text{ 24 }} + {\text{ 34}}\) \(\angle {\text{DFG }} = {\text{ 58}}^\circ \) This next example is a backwards one! Example 2: Find the measure of x. \(\angle {\text{JKM }} = \angle {\text{L }} + \angle {\text{M}}\) \({\text{146 }} = {\text{ 77 }} + {\text{ x}}\) \(- {\text{77}}\) _____ \({\text{69}}^\circ = {\text{ x}}\) Those will be the two basic types of questions that deal with the Exterior Angle Theorem. They can get tougher when they throw in more than one x! But they are all set up the same way. Example 3: Solve for x. \(\angle {\text{MED }} = \angle {\text{C }} + \angle {\text{D}}\) \({\text{11x }}-{\text{ 1}}0{\text{ }} = {\text{ 6x }} + {\text{ 11 }} + {\text{ 39}}\) \({\text{11x }}-{\text{ 1}}0{\text{ }} = {\text{ 6x }} + {\text{ 5}}0\) (combine like terms) \({\text{6x}} - {\text{6x}}\) (get variable on one side) _____ \({\text{5x }}-{\text{ 1}}0{\text{ }} = {\text{ 5}}0\) \(+ {\text{1}}0 + {\text{1}}0\) _____ \({\text{5x}} = {\text{6}}0\) \({\text{x }} = {\text{ 12}}\) Example 4: Solve for x. \(\angle {\text{DEF }} = \angle {\text{G }} + \angle {\text{F}}\) \({\text{1}}0{\text{x }} + {\text{ 2 }} = {\text{ 2x }} + {\text{ 1 }} + {\text{ 89}}\) \({\text{1}}0{\text{x }} + {\text{2 }} = {\text{ 2x }} + {\text{ 9}}0\) \(- {\text{2x}} - {\text{2x}}\) _____ \({\text{8x }} + {\text{ 2 }} = {\text{ 9}}0\) \(- {\text{2}} - {\text{2}}\) \({\text{8x}} = {\text{88}}\) \({\text{x }} = {\text{ 11}}\) Below you can download some free math worksheets and practice.

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