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theta 1 0 2 sin theta 1 0 sin theta dfrac 1 2 theta dfrac pi 6 dfrac 5 pi 6 sin theta 1 theta dfrac pi 2 end align question use the law of sines to find the length of the side x solution the unknown side x is opposite the 46 5 angle and the side with length 7 is opposite the 39 4 angle plug these values into the law of sines equation solve for x 7 sin 46 5 x sin 39 4 7 0 725 x 0 635 5 078 x 0 635 x 8 example 1 finding a missing side let s find a c in the following triangle according to the law of sines a b sin c a c sin b now we can plug the values and solve a b sin c a c sin b 5 sin 33 a c sin 67 5 sin 67 sin 33 a c 8 45 a c example 2 finding a missing angle example 1 in a triangle we have the angles a 50 and b 30 and we have the side a 10 determine the length of side b solution we can observe the following information a 50 b 30 a 10 we apply the law of sines together with the given values and solve for b frac a sin a frac b sin b sin a a sin b b sine is the ratio of opposite hypotenuse sin 45 opposite hypotenuse get a calculator type in 45 then the sin key sin 45 0 7071 what does the 0 7071 mean it is the ratio of the side lengths so the opposite is about 0 7071 times as long as the hypotenuse we can now put 0 7071 in place of sin 45 law of sines law of cosines solving general triangles unit 4 trigonometric equations and identities 0 700 mastery points inverse trigonometric functions sinusoidal equations sinusoidal models you will need to use the sine formula shown below to solve these problems law of sines the ratio of the sine of an angle of a scalene triangle to the side opposite that angle is the same for all angles

and sides in the triangle sin a a sin b b sin c c law of sines problems solution since side a is given we need the measure of a m a 180 m b m c 180 34 80 66º this answer makes sense since a smaller side is opposite a smaller angle answer b 10 aas two angles and the non included side are given free math problem solver answers your trigonometry homework questions with step by step explanations sine problems find missing sides and angles how to find the angles and sides using the sine ratio and how to solve word problems using the sine ratio examples and step by step solutions the sine of an obtuse angle is defined to be the sine of its supplementary acute ssa two sides and the non included angle are given to summarize the ambiguous case what to look for when dealing with ambiguous case when using the law of sines with ssa consider the value of sine 1 sin b 1 and the supplemental angle possibilities click here for answers advanced trigonometry practice questions previous 3d trigonometry practice questions next exact trigonometric values practice questions the corbettmaths practice questions on advanced trigonometry problem 1 sin a displaystyle frac 61 11 1161 displaystyle frac 60 61 6160 displaystyle frac 11 61 6111 displaystyle frac 11 60 6011 problem 2 tan a displaystyle frac 11 61 6111 displaystyle frac 61 11 1161 displaystyle frac 60 11 1160 displaystyle frac 11 60 6011 problem 3 cot a 2 $2\cos^2 x \cos x 1 0$ $2\cos^2 x \cos x 1 2 0$ $2\cos^2 x \cos x 1 0$ switch signs multiply by 1 $2\cos^2 x \cos x 1 0$ this is the same pattern as $2a^2 a 1$ which factors into $2a 1 a 1$ $2\cos^2 x \cos x 1 0$ factors into $2\cos x 1 \cos x$

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1 theta dfrac pi 2 end align

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