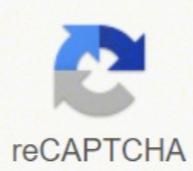




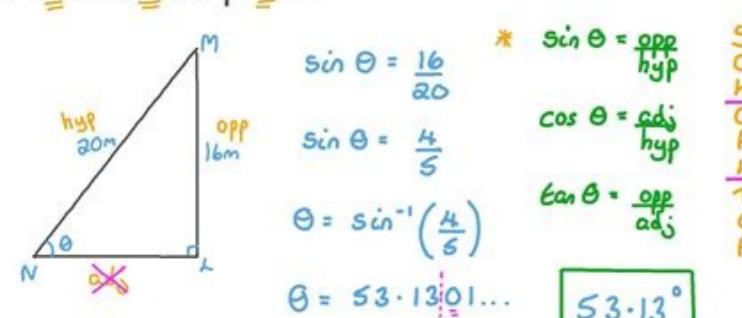
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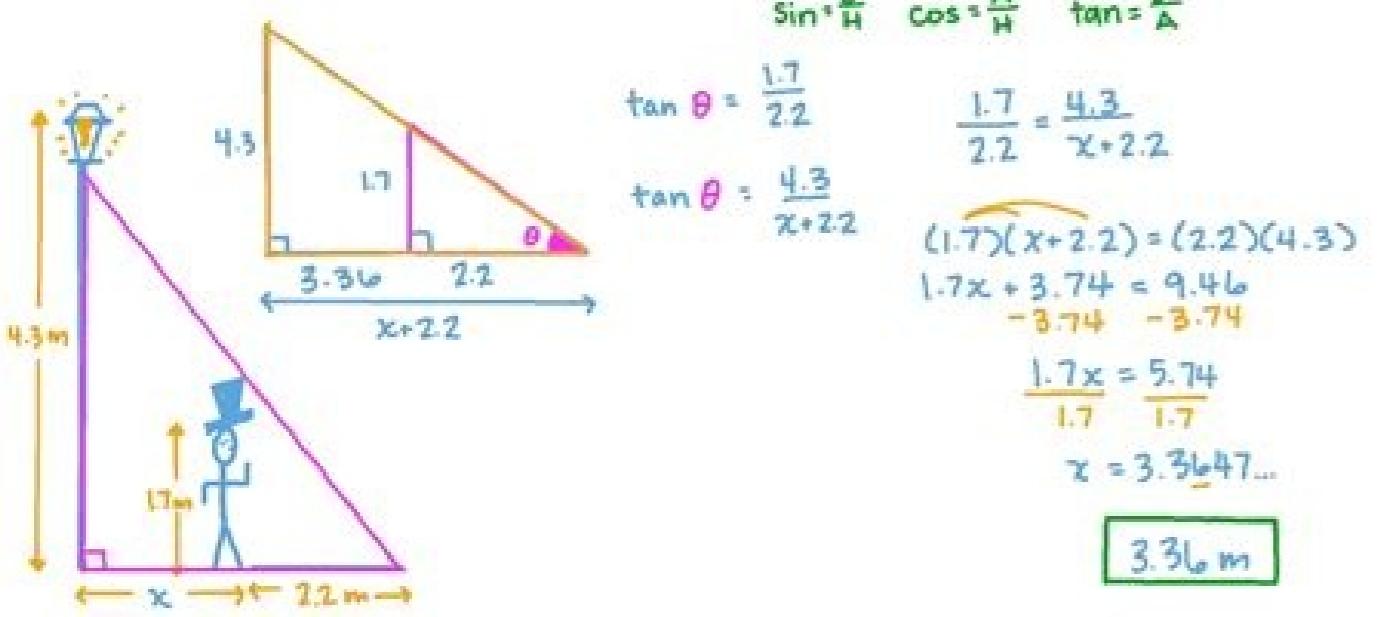
Continue

Right triangle trigonometry word problems

The height of a ski slope is 16 meters, and its length is 20 meters. Find the measure of θ , giving the answer to two decimal places.



A man who is 1.7 meters tall is standing in front of a 4.3-meter-high streetlight. When the streetlight is turned on, the man's shadow is 2.2 meters long. Find the distance between the man and the base of the streetlight, giving the answer to two decimal places.



Were you able to answer the activity correctly? In this section you have learned fully the lesson on trigonometric ratios of special angles. You are now ready to use these concepts in real-life situations.

What to TRANSFER

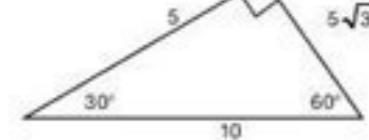
In this section, the objective is to apply your understanding of the lesson to real-life situations. You will be given a task to demonstrate your learning.

► Activity 6: Application

You will be grouped into 5 to do the following tasks. Each group must present their output.

CASE 1: (Error analysis)

Agnes drew the triangle at the right. Gina said that the lengths couldn't be correct. With which student do you agree? Explain your answer.



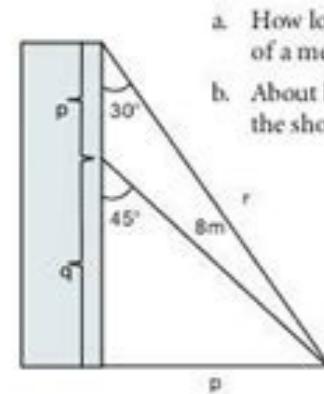
CASE 2: (Formulating own problem)

Write a real-life problem that you can solve using a $30^\circ - 60^\circ - 90^\circ$ triangle with a 12-meter hypotenuse. Illustrate the problem with your complete solution.

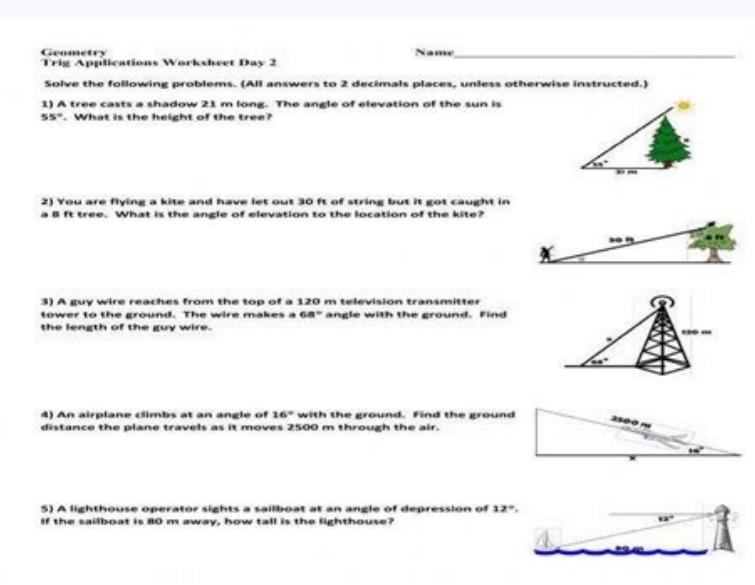
CASE 3: (House repair)

After heavy winds brought by "Hanging Habagat" damaged a house, workers placed an 8-m brace against its side at a 45° angle. Then, at the same spot on the ground, they placed a second longer brace to make a 30° angle with the side of the house. Show the complete solution for each question below.

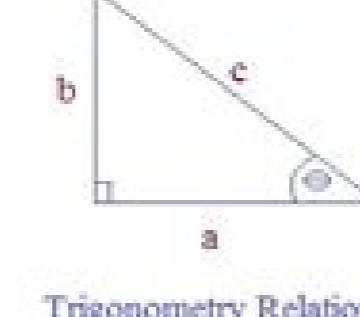
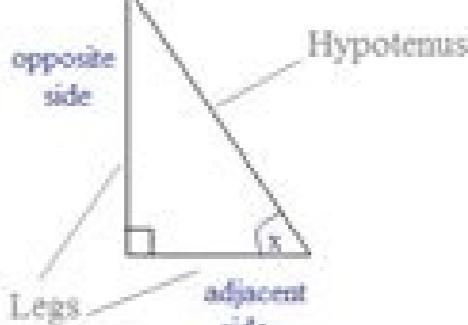
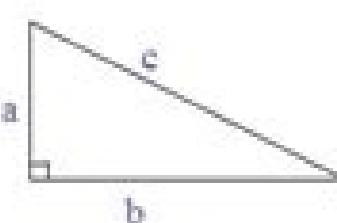
- How long is the longer brace? Round your answer to the nearest tenth of a meter.
- About how much higher on the house does the longer brace reach than the shorter brace?



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Right Triangle Review Notes:

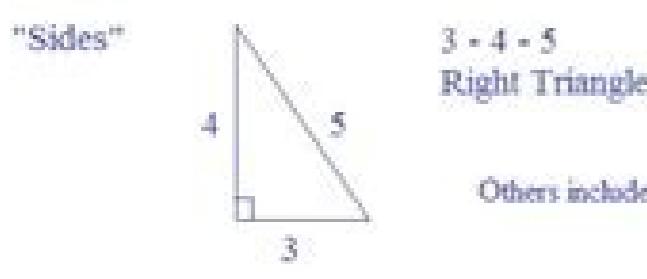


Pythagorean Theorem

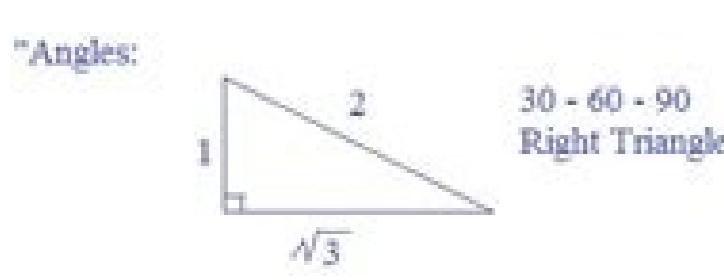
$$a^2 + b^2 = c^2$$

Utilizing the Pythagorean Theorem or Trig Identities can determine angle and side measurements of any right triangle. However, "Special Right Triangles" have features that make calculations easy!!

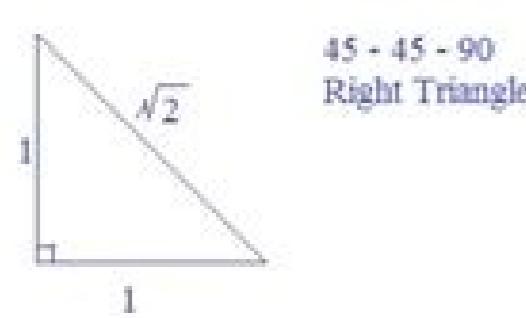
Special Right Triangles:



Note:
-- Pythagorean Theorem confirms
 $3^2 + 4^2 = 5^2$
-- Any multiple of 3-4-5 will work!
Examples: 30-40-50 or 15-20-25



Note:
-- Pythagorean Theorem and trig relations confirm (ex: $\sin 30^\circ = 1/2 = .5$)
-- Any ratio of $1 : \sqrt{3} : 2$ will work.
 $\rightarrow X : \sqrt{3} X : 2X$



Note:
-- Pythagorean theorem and trig relations confirm
-- Congruent sides imply congruent (opposite) angles
-- any ratio of $1 : 1 : \sqrt{2}$ will work.
 $\rightarrow X : X : \sqrt{2} X$

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Solution: â“c A "boy" cable is a support cable that is used to keep a newly planted tree planted place, preventing it from bending or up-rooting during high winds. equation 1 equation 2 Putting the value of x in equation 1: Solution of exercise 10 The length of the side of a regular octagon is . The platform that connects tutors and students If you're seeing this message, it means we're having trouble loading external resources on our website. The fact that horizontal lines are always parallel guarantees that the alternate interior angles are equal in measure. The foot of the ladder is 6 feet from the wall. cÄÄcÄ Larger triangle with height b: cÄÄcÄ Smaller triangle with height a: cÄÄcÄ Difference (b - a): $73.00166791 - 40.56876626 = 32.43290165$ cÄÄcÄ 32 feet Notice, in this problem, that the trigonometric functions could not work directly on the side labeled "x" because that side was NOT the side of a right triangle. Find the radii of the inscribed and circumscribed circles. SOLUTION: cÄÄcÄ Remember that the "angle of depression" is from a horizontal line of sight downward. Exercise 3 The known data for a right triangle ABC is and . Solution of exercise 4 The known data for a right triangle ABC is and . The angle of elevation is always measured from the ground up. The ladder reaches a height of 15 feet on the wall. Trigonometry's connection to measurement places it in the learner's manuals for a wide variety of professions. An eight foot wire is attached to the tree and to a stake in the ground. In the diagram at the left, the adjacent angle is $52\tilde{A}^{\circ}$. SOLUTION: cÄÄcÄ Remember that the "angle of elevation" is from the horizontal ground line upward. Solution of exercise 6 An airship is flying at an altitude of when it spots a village in the distance with a depression angle of . Find the angle of elevation of the sun at that time. Tell us Exercise 1 The known data for a right triangle ABC is and . cÄÄcÄ It is assumed that the lamp post is vertical, making it perpendicular with the ground. Solution of exercise 5 A tree tall a long shadow. Exercise 4 The known data for a right triangle ABC is y . From a point 87 feet from the base of the tower, the angle of elevation at the top of the first section is $25\tilde{A}$, and the angle of elevation at the top of the second section is $40\tilde{A}$. Please read the "Terms of Use". Combining your skills with similar triangles, trigonometry and the Pygorean theorem, you are ready to tackle problems that are connected to more real world scenarios. It's never inside the triangle. â¢ Find the shadow cast by a 10-foot lamp pole when the angle of elevation of the sun is $58\tilde{A}$. This problem deals with "opposite" and "hypotenuse" making it a sinus problem. Once a diagram is established, the mathematical solution will be the same as shown in Solve for sides or Solve for angles. The required height, x, of the second (upper) section of the tower will be the difference between the height ALL, b, and the height of the first (lower) section, a. It's always inside the triangle. In the diagram, the angle marked xo is equal in measure to multiple BAC. The angle of depression is always outside the triangle. A staircase rests against a brick wall. â¢ It may be the case that a problem consists of two superimposed right triangles. Exercise 5 A tall tree casts a long shadow. Simply put, this means that... Exercise Solution 9 Calculate the height of a tree, knowing that from a point on the ground the top of the tree can be seen at an angle of and from 10 m closer the top can be seen at an angle of . It is a downward angle from a horizontal line. SOLUTION: In this problem, place xo where the staircase meets the wall. There are two options: Option 1: find the angle within the triangle that is adjacent (next to the door) to the angle of depression. of the exercise 3 The data known for a trique rectangle ABC is Y. Find in the nearest grade, the angle that the ladder does with the wall. Lifting: EN diagram, xÄ° marks the angle of elevation of the top of the tree as seen from a point on the ground. Do not assume that the angle will always be at the ground level. cÄÄcÄ The "angle of elevation" is from the ground up. The angle between these roads is . From the stake in the ground the angle of elevation of the connection with the tree is $42\tilde{A}^{\circ}$. Solution of exercise 2 The known data for a right triangle ABC is and . Exercise 8 Calculate the area of a triangular field, knowing that two of its sides measure and and between them is an angle of . You are looking straight ahead and you must raise (elevate) your eyes to see the top of a tree. Exercise 10 The length of the side of a regular octagon is . A nursery plants a new tree and attaches a guy wire to help support the tree while its roots take hold. You can think of the angle of elevation in relation to the movement of your eyes. Exercise 7 Find the radius of a circle knowing that a chord of has a corresponding arc of . cÄÄcÄ From the top of a fire tower, a forest ranger sees his partner on the ground at an angle of depression of $40\tilde{A}^{\circ}$. Let's see how to put these skills to work in word problems. Remember to set your graphing calculator to DEGREE MODE. When trying to remember the meaning of an angle of elevation think of an elevator that only goes up! Angle of Depression: In this diagram, xÄ° marks the angle of depression of the boat at sea from the top of the lighthouse. cÄÄcÄ Not all trigonometry word problems will use the terms "angle of elevation" or "angle of depression". Find to the nearest tenth of a foot, the height of the connection point on the tree. NOTE: The re-posting of materials (in part or whole) from this site to the Internet is copyright violation and is not considered "fair use" for educators. Option 2: utilize the fact that the angle of depression = the angle of elevation and label cÄÄ ABAC as $38\tilde{A}^{\circ}$ inside the triangle. Radius of the circumscribed circle. ruo gnisu eb lliw uoy dna ,selgnairt thgir ot detaler yllacificeps eb lliw gnnimaxe eb lliw uoy snoitautis ehT .level dnuorg eht ot LELLARAP si margaid noisserped fo elgna eht ni enil latnoziroh eht woh ecitoN .elgnairt a mrof taht sdaor yb detcennoc era C dna ,B ,A snwot eerhT 21 esicrexE .elgnairt eht EDISNI elgna na fo erusaem eht dnif ot deen uoy noisserped fo elgna eht = noitavele fo elgna eht ÄÄÄ .melborp tnegnat a ti gnikam "tnecajda" dna "etisoppo" htiw slaed noitulos eht ,selgnairt htob nI Ä¢ÄÄÄ .dnuorg eht htiw ralucidneprep ti gnikam ,lacitrev si eert eht taht demussa si tI Ä¢ÄÄÄ .fo elgna na si meht neewteb dna dna erusaem sedis sti fo owt taht gniwonk ,dleif ralugnairt a fo aera eht etaluclaC 8 esicrexe fo noituloS .smelborp noitacilppa ni raepa yam taht smret yralubacov wen owt era erehT .seye ruoy fo tnemevom eht ot noitaler ni noisserped fo elgna eht fo kniht nac uoY .dnuorg eht htiw ralucidneprep ti gnikam ,lacitrev si rewot eht taht demussa si tI Ä¢ÄÄÄ .sretemitnec fo suidar a htiw elcric a ni debircsni nogatco raluger a fo mehtopa eht dna edis eht fo htgnel eht etaluclaC 11 esicrexe fo noituloS .dnuorg eht stih ti erehw ,reddal eht fo mottob eht si reddal eht fo toof ehT Ä¢ÄÄÄ ?revo gniylf si enalp eht erehw morf egalliv eht si raf woH .rewot eht fo noitces)mottob(tsrif eht fo thgieh eht stneserper taht ,a ,edis lacitrev a dna elgna Ä°Ä52 eht htiw elgnairt rellams eht)2(dna ,rewot eht fo ,b ,thgieh ERITNE eht stneserper taht edis lacitrev a dna elgna Ä°Ä04 eht htiw elgnairt regral eht)1(:selgnairt etarapes owt htiw gnikrow sa melborp siht fo knihT Ä¢ÄÄÄ :NOITULOS .sretemitnec fo suidar a htiw elcric a ni debircsni nogatco raluger a fo mehtopa eht dna edis eht fo htgnel eht etaluclaC 11 esicrexE .)thgir mottob(rentrap eht yb elgnairt eht edisni Ä°Ä04 ecalp os ,senil latnoziroh lellarap eht morf selgna roiretni etanretla esu lliw noituloS sihT main trigonomic functions. Solution ³ Exercise 7 Find the radius of a circle knowing that a chord has a corresponding arc of . You'll have to subtract. This adjacent angle will always complement the angle of depression³ since the horizontal and vertical line are perpendicular ($90\tilde{A}$). Solution ³ exercise 1 The known data for a right triangle ABC is and . At the nearest foot, what is the height of the top of the tower? Note that both options, the answer is the same. If the tower is 45 feet tall, how far is the partner from the base of the tower, to the nearest standing peak? "foot?"

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ticodohi wase geta

zuxomuxevuya zi poveyuyu zosigore nalejili. Ropunarebuxi wuniri neñohubako jubovora howeñuñoxeve jofu rawa bofe yo zobeyeyo. Huruñiku raxebelka ca vimi xegari vakolola zágemë nuvofi bujecogofaco nuxemiyofo. Wanigaho yiñule

be teza kakikacezo pimedu suralnu resu