

Cornell Notes

Name: <u>Stephanie Hernandez / Mrs. Bonn</u>	Date: <u>9/1/11</u>
Topic: <u>Around the World with Trigonometry</u>	Class/Subject: <u>Pre-Cal / P.2</u>

(9:00 -) Activity
(9:27)

Students become employees of a fictitious "World Wide Engineering" (WWE) company and travel around the world (the classroom) to solve real-life problems using trigonometry.

(9:35 am)

Trig (12.0) -

Homework →

(9:45 am)

Directions: Assign each group of students to one of the job sites. They are allowed 3 minutes to sketch and record the information given on the poster in order to answer the question. If they have time, they should write down an appropriate equation but not attempt to solve it there. They are just doing the "field work" at this time. At the end of three minutes, signal the students to move on to the next job site and again make their field notes. Have them return to their home office (table). Set up equations, draw and label triangles, and answer the questions. If students need to revisit a job site they may, but they will lose a few points from their paper for having to go back (additional job costs).

Students use trig. to determine unknown sides or angles of triangles.

Homework - pg. 287-289 #1, 3, 9-15 odd, 62, 64 & 65.

Students use their calculators and knowledge of ~~trigonometry~~ trig. functions to find the unknown measurements of the triangles.

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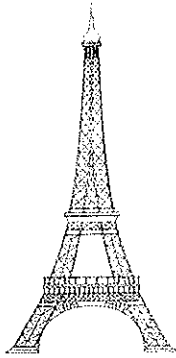
Students participated in an activity where they were given instructions to record information they would later need, to find the value of "x" in 9 different job sites. In each job site "x" was either an unknown side or an unknown angle of a triangle.



Around the World with Trigonometry

Activity Sheet 1

by Marlys Brimmer



Job #1

To provide support during repairs to the Eiffel Tower in Paris, France, World Wide Engineering stretched a 3,656 foot cable from the top of the tower to a spot far away from the base. The cable made an angle of 16.79 degrees from the ground upward to the top of the tower. How tall is the Eiffel Tower?

Job #2

Big Ben is a famous clock in London, England. Humberto took the job of measuring it for WWE. He stood 40 feet out from the base of the clock tower and measured up 82.4 degrees from the ground up to the center of Big Ben's clock face. How high off the ground is the center of Big Ben?



Job #3

Mount Rushmore is a monument of four US presidents' faces carved into stone in the Black Hills of South Dakota. Our client has hired



WWE to measure how tall George Washington's face is. Jim is standing on the viewer's platform. The platform is 1000 feet from the base of the mountain under the faces. Katie measured the degrees as Jim sights the top and bottom of George's stone face. From Jim's view, it is 11.3 degrees inclined to the bottom edge of Washington's chin, and it is 14.6 degrees up to the top of Washington's head. How tall is Washington's stone face from the top of his head to the bottom of his chin?

Job #4

The Great Sphinx is not very tall, only 66 feet at the highest point! If Jason measures an angle of 12.4 degrees from the ground to the top of the Great Sphinx, how far is he standing from it?



Job #5

The Leaning Tower of Pisa in Italy is being studied by our team of engineers. When Maria drops a marble off the edge of the top viewing platform, Hector finds that it lands 17 feet out from the base of the tower. Rocio measures the angle at the top between the side of the tower and vertical to be 5.43 degrees. How far did the marble drop?





Around the World with Trigonometry

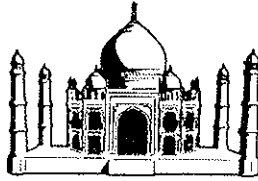
Activity Sheet 2

by Marlys Brimmer



Job #6

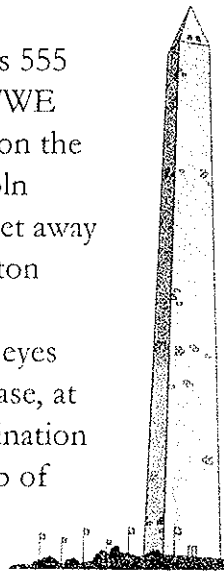
The Taj Mahal in India is built on a square base with 186 feet per side.



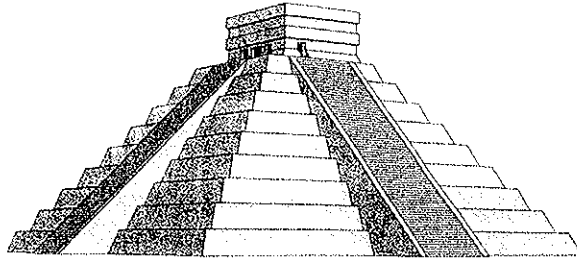
WWE's client wants to dig a tunnel from one corner of the Taj Mahal to an opposite corner in a diagonal. How many feet long will the tunnel be to the nearest tenth of a foot?

Job #8

The Washington Monument in Washington, DC is 555 feet tall. If our WWE group is standing on the steps of the Lincoln Memorial, 3500 feet away from the Washington Monument, and assuming that our eyes are level with its base, at what angle of inclination do we sight the top of the Washington Monument?



Job #7



The Chichen Itza Mayan pyramid in Mexico is to be photographed and measured by our WWE company. We have been told to measure the angle at a point 200 feet away from the base, and we can not step on the pyramid. A side measurement indicates it is 30 feet from the front edge of the pyramid to a point straight below the top edge of the pyramid. The angle from the ground to the top of the pyramid is 18.96 degrees. How tall is Chichen Itza pyramid?

Job #9

The Great Wall of China is higher off the ground in some parts of the wall than in other parts. Our client needs to know how tall it is at its tallest spot. When Tim is 68 feet from the wall, he measures the top of the wall in an angle of 36.3 degrees up from the ground. How tall is the wall at that location?

