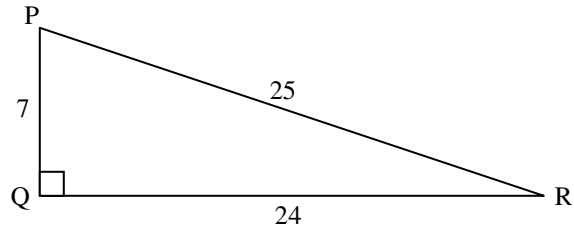


Express each trigonometric ratio as a fraction and as a decimal rounded to the nearest thousandths.

1) $\cos R =$ _____

2) $\sin R =$ _____

3) $\tan P =$ _____



Word problems.

- 4) A guy wire is attached to the top of a 75 foot tower and meets the ground at a 65° angle. How long is the wire?

- 5) When the sun's angle of elevation is 57° , a building casts a shadow 21 meters long. How high is the building?

- 6) A kite is flying at an angle of elevation of about 40° . All 80 meters of string have been let out. Ignoring the sag in the string, find the height of the kite.

- 7) A man stands at the top of a 105 foot light house and sees a boat. The angle of depression to sight the boat is 37° , find the distance between the base of the light house and the boat.

- 8) An observer in an airplane at a height of 500 meters sees a car at an angle of depression of 31° . If the plane is over a barn, how far is the car from the barn?

- 9) From a point 340 meters from the base of the Hoover Dam, the angle of elevation to the top of the dam is 33° . Find the height of the dam to the nearest meter.
- 10) The Pyramid of the Sun in the ancient Mexican city of Teotihuacan was unearthed from 1904 – 1910. From a point on the ground 300 feet from the center of its square base, the angle of elevation to its top would have been 31° . What was the height of the pyramid?

Complete the following statements with always, sometimes, or never. Explain your answer with complete sentences.

- 11) The tangent of an angle is _____ less than 1.
- 12) The angle of elevation from your eye to the top of a twenty-foot flagpole _____ gets smaller as you walk towards the flagpole.
- 13) Given the measure of an acute angle in a right triangle and the length of one of the triangle's legs, you can _____ use trigonometry to find the length of the hypotenuse.
- 14) The angle of depression from the top of a building to a car traveling towards the building _____ increases as the car travels closer.