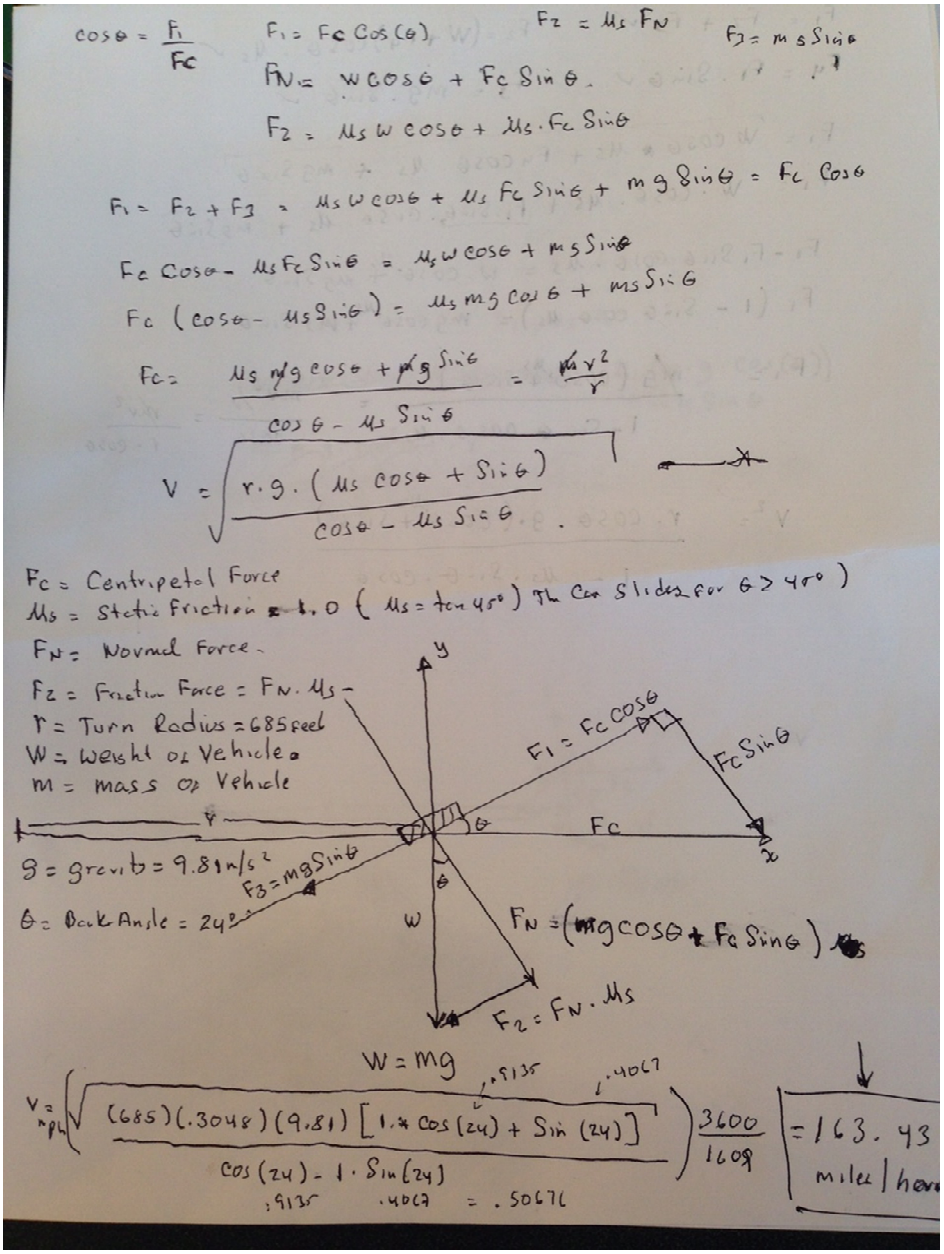
SOLUTIONS TO VARIOUS MATH PROBLEMS

(Version 02-14-2026)

Neil Tyson Math Problem

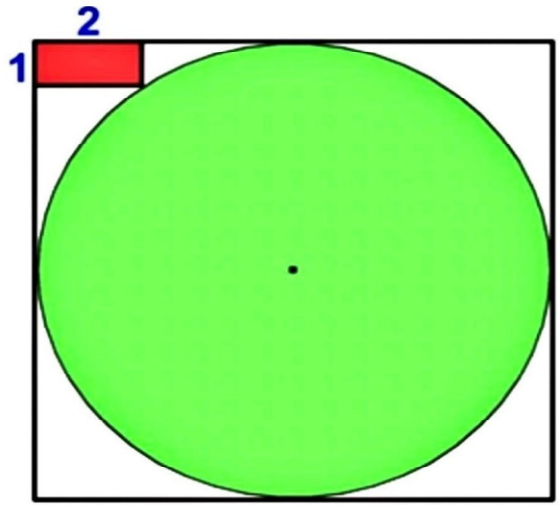
PROBLEM: Show that the maximum speed a car can have without sliding when taking a curve with a bank angle of 24 degrees is 163 miles per hour.

SOLUTION: Derived while in Apple Bees. The best place to do your homework



Face Book Math Problem # 2

Find the Area of the Green Circle Inside of a Square ?



Let R be the radius of the green Circle and P(x1, y1) the point where the red square touches the circle. Also given that the equation of a circle, placed in the center of the X-Y axis is :

(Eq 1) X^2 + Y^2 = R^2.

Therefore, the point P coordinates will be

(Eq 2) x1=R-2 and (Eq 3) y1=R-1

Using Equations 1, 2 and 3 we determine that

(Eq 4): (R - 2)^2 + (R - 1)^2 = R^2

Solving for the variable R

(Eq 5): R^2 - 4R + 4 +R^2 -2R + 1 = R^2

Simplifying Eq 5 we have R^2 – 6R + 5 = 0 which is equal to the expression (R – 5)(R + 1) = 0

Therefore, R = 5 and R= - 1. Since R = -1 is not a real solution

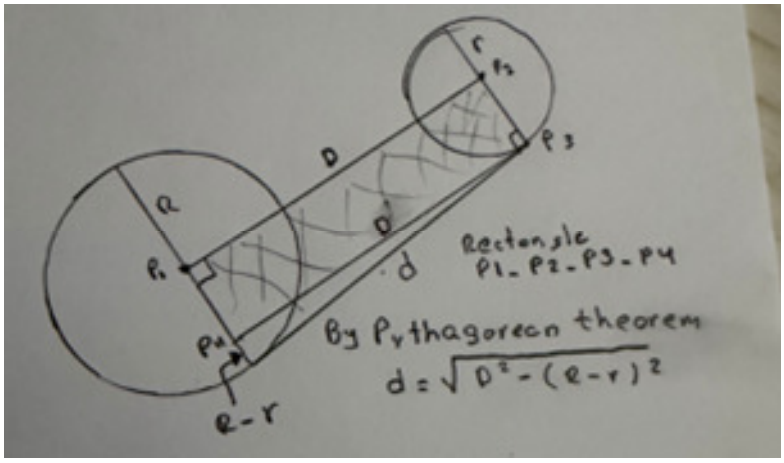
Therefore, the radius of the circle I R = 5

and the Area of the circle is Pi * R^2 = 25*Pi where

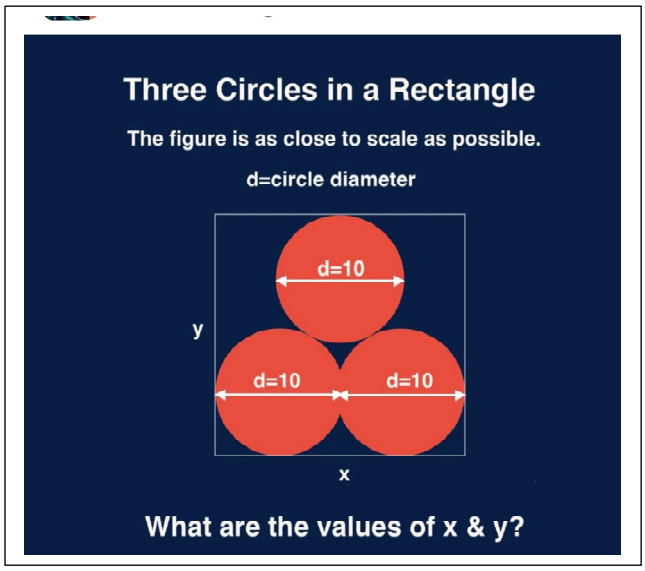
Pi = 3.1416.

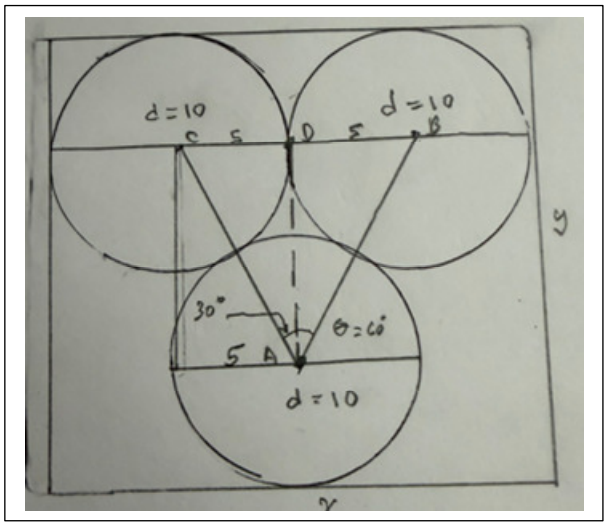
Problem in the Children Science Museum “La Nube”

Find the Length of the Tangent Line “d” between two circles of radiuses R and r



Math Problem





Find X & Y values

CD=5, theta=60 degrees by definition of equilateral triangle

Therefore Tan(30 deg) = 5 / AD : AD= 5/ Tan(30 deg) = 8.66

Therefore Y = 8.66 + 5 + 5 = 18.66

And X = 10 + 10 = 20