**Math 30-1: Trigonometry Investigation**

Use a protractor, ruler and this circle with a radius of 1 to complete the chart on the other side of the page. Measure angles as precisely as possible and round coordinate values to the nearest hundredth.



|  |  |  |  |
| --- | --- | --- | --- |
| **Angle in Standard Position** | **x-coordinate** | **y-coordinate** | **Ratio of y/x** |
| 0 degrees |  |  |  |
| 10 degrees |  |  |  |
| 20 degrees |  |  |  |
| 30 degrees |  |  |  |
| 40 degrees |  |  |  |
| 50 degrees |  |  |  |
| 60 degrees |  |  |  |
| 70 degrees |  |  |  |
| 80 degrees |  |  |  |
| 90 degrees |  |  |  |
| 100 degrees |  |  |  |
| 110 degrees |  |  |  |
| 120 degrees |  |  |  |
| 130 degrees |  |  |  |
| 140 degrees |  |  |  |
| 150 degrees |  |  |  |
| 160 degrees |  |  |  |
| 170 degrees |  |  |  |
| 180 degrees |  |  |  |
| 190 degrees |  |  |  |
| 200 degrees |  |  |  |
| 210 degrees |  |  |  |
| 220 degrees |  |  |  |
| 230 degrees |  |  |  |
| 240 degrees |  |  |  |
| 250 degrees |  |  |  |
| 260 degrees |  |  |  |
| 270 degrees |  |  |  |
| 280 degrees |  |  |  |
| 290 degrees |  |  |  |
| 300 degrees |  |  |  |
| 310 degrees |  |  |  |
| 320 degrees |  |  |  |
| 330 degrees |  |  |  |
| 340 degrees |  |  |  |
| 350 degrees |  |  |  |
| 360 degrees |  |  |  |

“This is a diagram showing a circle with a radius of one.  There is a 40-degree angle drawn on top of it.  Please check now to see that the angle ends at (approximately) the point (0.76, 0.64).  We can approximate to the hundredths place from this diagram.

“On the opposite side of this sheet you will see a table with rows for every angle between 0 and 360 degrees, in increments of ten degrees.  In the row for 40 degrees, please enter 0.76 under the x-coordinate, because 0.76 is the x-coordinate of the end of the 40-degree angle on the diagram.  Please enter 0.64 under the y-coordinate, because 0.64 is the y-coordinate of the end of the 40-degree angle.  Finally, please enter 0.84 under “ratio of y/x,” because 0.64/0.76 is approximately 0.84.

“Your homework is to fill out this chart completely, for all 35 of the other angles listed.  The coordinates you get will vary as you choose other angles.  You will need a protractor to draw angles – please actually draw the angles you need to measure, and do not attempt to estimate angles without a protractor.  If you find a logical shortcut, you may use it.”