1MG Level 2 03.05.2023	**TRIGONOMETRY**	TEST 5 - A 1MG01 – 90'

/ 44 Name: _____

INDICATE YOUR COMPUTATIONS - SIMPLIFY YOUR ANSWERS AS MUCH AS POSSIBLE

Exercise 1. / 7 15'

1) The sides of a triangle are $a = 12$, $b = 9$, $c = 5$. Determine the measures of its three angles.
2) The area of a triangle is 100. We know the sides $a = 20$ and $b = 15$. Calculate the possible values for the angle γ.

Exercise 2. / 14 25'

Solve the following trigonometric equations.

1) $\sin(3x) + 4\cos(3x) = 0$
2) $\cos^2(x) + 2\sin(x) = -1$
3) $\sin(4x + 20°) = -\sin(2x)$
4) $2\arccos(x) = \arctan(1)$

Exercise 3. / 5 10'

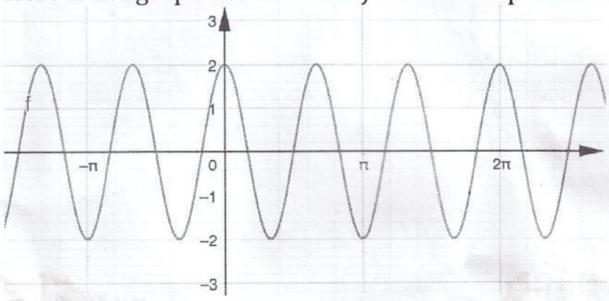
We give $\sin(x) = -0.8$ with P_x in Q_{III}, and $\cos(y) = 0.8$ with P_y in Q_{IV}.
Determine the value of $cos(x - y)$.
You're not allowed to use the measures of the angles x and y.
Justify your answers with computations.

Exercise 4. / 20'

1) Give the polar coordinates of the point $A(-5; 12)$.
2) Determine the Cartesian and polar coordinates of the point A' that is the reflection of point A about the x-axis.
3) Point A is rotated by $-40°$ about the origin. At what distance from the y-axis is the point now?
4) Give the equation of the steeper line that passes through the point $(2; 1)$ and forms an angle of $20°$ with the line $y = x$.

Exercise 5. / 10 15'

1) Give the domain of $f(x) = \tan(2x)$ (x is in rad)
2) Here is the graph of a function f. Give its expression.



3) Give a function whose period is $T = 2$.
4) Give the period of $f(x) = \sin\left(\frac{x}{5}\right) + \tan\left(\frac{x}{4}\right)$ with justifications.
5) Give the range of $f(x) = 5\sin(4x + 3) - 2$