SEKOLAH BUKIT SION – HIGH SCHOOL

AY 2021 – 2022
ADDITIONAL MATHEMATICS 0606

CHAPTER TEST: TRIGONOMETRY

NAME: _____ **DATE:** _____
CLASS: _____ **SCORE:** _____/40

Question1 **[5 marks]**

Find all the angles between 0 and 360 inclusive which satisfy:

$\sin(2x + 40°) = \cos 70°$.

Question 2 **[4 marks]**

Prove that $\frac{1 - \sin\theta\cos\theta + \cos^2\theta}{\sin^2\theta} = 2\cot^2\theta - \cot\theta + 1$.

Question 3 **[8 marks]**

(a) On separate diagrams, sketch the graphs of the following for values of x $0 \leq x \leq \pi$.

(i) $y = \sin 2x$
(ii) $y = |\sin 2x|$

(b) By drawing appropriate straight line, find the number of solutions of $|\sin 2x| = ½$.

Question 4 **[6 marks]**

Using $0 \leq y \leq 2\pi$, solve for all values of y in $4 + \sin y \tan y = 4\cos y$.

Question 5 **[4 marks]**

Given that $\tan \theta = 1/5$, where θ is in the first quadrant, express in lowest and rationalised terms:

(a) $\sin \theta$

(b) $\sec \theta$

(c) $\sin^2 \theta + \cos^2 \theta$

Question 6 **[4 marks]**

Prove that $\sec x - \cos x = \sin x \tan x$.

Question 7 **[4 marks]**

It is given that $\sin \theta = -0.7548$ and that $\tan \theta$ is positive and θ lies between 90° and 800°.
Draw a diagram showing the quadrant in which θ lies.
Indicate clearly the acute angle (reference angle created.

Find all the values of θ.

Question 8 **[5 marks]**

Find all the angles between 0 radians and 6 radians for which

$$12 \cos(2x - 1) = -6.$$