Name:

QUIZ 30 – MATH IB HL

1. (10%) Solve the following equation: $\sin(2x+\frac{\pi}{3})=-\frac{1}{2}, \qquad -\pi \le x \le \pi$

2. (10%) Solve the following equation: $\tan(4x)=\sqrt{\frac{1}{3}}, \qquad 0 \le x \le \pi$

3. (10%) Solve the following equation: $\cos(x^{o})=-\frac{1}{\sqrt{2}}, \qquad 180^{o} \le x \le 360^{o}$

4. (20%) Find all the values of θ in the interval $[-\pi, \pi]$ which satisfy the equation

   $\cos 2\theta = 2\sin^2\theta$.

5. (15%) Solve the following equation: $\sin(2x) = \tan(x)$, $0 \le x \le \pi$

6. (15%) If A is an **obtuse** angle in a triangle and $\text{Sin A} = \frac{2}{7}$, calculate the exact value of Cos2A.

7. (20%)

(a) Write the expression $6\cos^2 x - 9\sin x$ in the form $a\sin^2 x + b\sin x + c$.

(b) Hence or otherwise, solve the equation

$$6\cos^2 x - 9\sin x - 9 = 0, \qquad \frac{\pi}{2} \le x \le 2\pi$$