

Mathematics Department – Langholm Academy

HIGHER HOMEWORK

UNIT 1

CHAPTER 2.3

Trigonometric Functions and Graphs

Homework 2

Higher - Unit 1
Trig Functions & graphs 2

1. Solve the following equations $0 \leq x \leq 360$
 - a. $\sin x = 0.8$
 - b. $\cos x = -0.3$
 - c. $5 \tan x = -11$
 - d. $3 \cos x - 4 = -2$
 - e. $\sin^2 x = 0.8$
 - f. $6 \tan^2 x = 213$

2. Solve the following equations $0 \leq \theta \leq 2\pi$ (giving your answer in radians to 1 decimal place)
 - a. $\sin \theta = 0.4$
 - b. $3 \cos \theta + 2 = 0$

3. Solve the following equations $0 \leq x \leq 360$
 - a. $2 \sin^2 x - \sin x = 0$
 - b. $5 \cos^2 x + 2 \cos x = 0$

4. Solve the following equations $0 \leq x \leq 360$ (**hint** : for the last 2 questions use the substitution $\sin^2 x = 1 - \cos^2 x$ or $\cos^2 x = 1 - \sin^2 x$)
 - a. $\sin^2 x + \sin x - 2 = 0$
 - b. $3 \cos^2 x + 5 \cos x - 2 = 0$
 - c. $\tan^2 x - 5 = -4 \tan x$
 - d. $6 \cos^2 x - \sin x - 5 = 0$
 - e. $5 \sin^2 x = 2 \cos x + 2$

5. Solve the following equations $0 \leq x \leq 360$
 - a. $\sin(x - 30) = \frac{\sqrt{3}}{2}$
 - b. $\cos(x + 15) = \frac{1}{2}$
 - c. $\sin(2x + 10) = \frac{1}{\sqrt{2}}$
 - d. $\sqrt{3} \tan(2x - 60) = 1$

6. Solve the following equations $0 \leq \theta \leq 2\pi$ (giving your answer in radians to 1 decimal place)
 - a. $\tan(2\theta - 20) = 7.3$
 - b. $5 \cos(3\theta - 65) = 2$