THE ERINDALE ACADEMY
1576 Dundas Street West, Mississauga ON L5C 1E5
www.teacademy.ca Tel: 905-232-1576
Email: info@teacademy.ca

Teacher: Ms. Ella

Unit 5 – Trigonometric Identities and Equation

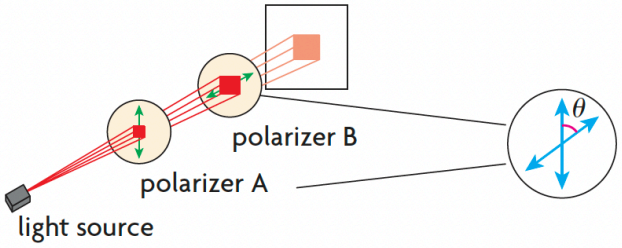
Chapter 7.5 – 7.6: Solving Linear and quadratic trigonometric equations

Solving Trig equations:
Steps:

1) Move all the terms to one side of the equal sign so that the equations equals zero
2) Factor and set each factor to zero, or use the quadratic formula, to solve for the trigonometric ratio,
3) Each factor should involve only one trig ratio
4) Solve for the R.A.A. for each of the ratios/factors
5) Apply C.A.S.T rule
6) Determine the angles using R.A.A

Example 1:

A polarizing material is used in camera lens filters, LCD televisions, and sunglasses to reduce glare. In these examples, two polarizers are used to reduce the intensity of the light that enters your eyes.



The amount of the reduction in light intensity, I, depends on θ, the acute angle formed between the axis of polarizer A and the axis of polarizer B. Malus's law states that $I = I_0 \cos^2 \theta$, where I_0 is the intensity of the initial beam of light and I is the intensity of the light emerging from the polarizing material.

? At what angle to the axis of polarizer A should polarizer B be placed to reduce the light intensity by 97%?

Teacher: Ms. Ella

Example 2: Solve each equation for $0 \leq x \leq 2\pi$.

a) $cos2x = 2sinxcosx$

b) $3sinx + 3cos2x = 2$

Practice:

a) $2sec^2x - 3 + tanx = 0$

b)

Natasha is a marathon runner, and she likes to train on a 2π km stretch of rolling hills. The height, in kilometres, of the hills above sea level, relative to her home, can be modelled by the function $h(d) = 4\cos^2 d - 1$, where d is the distance travelled in kilometres. At what intervals in the stretch of rolling hills is the height above sea level, relative to Natasha's home, less than zero?

Teacher: Ms. Ella