1. A volcanologist needs to mesure the distance across the base of active volcano. Distance AB is measured at 1.5 km. Using a theodolite ( a sighting instrument used by surveyors) angle BCA is found to be 95.70. what is the distance across the base? /6marks



1. Solve the equation sin $∅+\cos(∅=1)$
2. Draw the graph of the following function

Y=$\left\{\begin{array}{c}1 ; x\leq 0\\x^{2}+1 ;0<x<2 \\5 ;x\geq 2 \end{array}\right.$

1. If f(x)=$\sqrt{x}$ and g(x)= $x^{2}-1$ describe fog and prove that fog $\ne gof$

Locate the vertical asymptotes ( s) and state the domain in set notation.

$h\left(x\right)=\frac{x^{2}}{x^{2}+3x-10}$ /7marks

1. Decompose $\frac{x-11}{x^{2}-2x-3}$ into partial fractions
2. **Evaluate this limit**

$\lim\_{x\to 0}\frac{sin 3x}{4x}$

1.