1. The Trigometric Ratio 1

1. Given sin(90 - a) = ½ , find without using trigonometric tables the value of cos a (2mks)

2. If $\tan\theta = \frac{24}{45}$,find without using tables or calculator, the value of

$$\frac{\tan\theta - \cos\theta}{\cos\theta + \sin\theta}$$

(3 marks)

3. At point A, David observed the top of a tall building at an angle of 30°. After walking for 100meters towards the foot of the building he stopped at point B where he observed it again at an angle of 60°. Find the height of the building

4. Find the value of θ, given that ½ sinθ = 0.35 for $0^o \leq \theta \leq 360^o$

5. A man walks from point **A** towards the foot of a tall building 240 m away. After covering 180m, he observes that the angle of elevation of the top of the building is 45°. Determine the angle of elevation of the top of the building from **A**

6. The table below gives a field book showing the results of a survey of a section of a piece of land between A and E. All measurements are in metres.

	E	
D33	95	
	90	**F** 36
C21	70	
B 42	30	**G** 25
	25	**H** 40
	A	

(a) Draw a sketch of the land.
(b) Calculate the area of this piece of land.

7. Solve for x in $2\cos 2x^0 = 0.6000$ $0^0 \leq x \leq 360^0$.

8. Wangechi whose eye level is 182cm tall observed the angle of elevation to the top of her house to be 32° from her eye level at point A. she walks 20m towards the house on a straight line to a point B at which point she observes the angle of elevation to the top of the building to the 40°. Calculate, correct to 2 decimal places the ;
a)distance of A from the house
b) The height of the house

9. Given that cos A = $^5/_{13}$ and angle A is acute, find the value of:-
2 tan A + 3 sin A

10. Given that tan 5° = 3 + 5, without using tables or a calculator, determine tan 25°, leaving your answer in the form $a + b\sqrt{c}$

11. A student whose eye level is 182cm from the ground observed the top of their house at an angle of elevation of 32° at point **A**. She walked for 20m towards the house along a straight road to a point **B**, where she observed the top of the building again at an angle of elevation of 40°. Calculate correct to 2 decimal places the:-
(a) Distance of **A** from the house
(b) The height of the house

12. Given that tan **x** = $\frac{5}{12}$, find the value of the following without using mathematical tables or calculator:
(a) Cos x
(b) $\text{Sin}^2(90\text{-}x)$

13. If tan $\theta = {}^{8}/_{15}$, find the value of $\frac{\textbf{Sin}\theta - \textbf{Cos}\theta}{\textbf{Cos}\theta + \textbf{Sin}\theta}$ without using a calculator or table