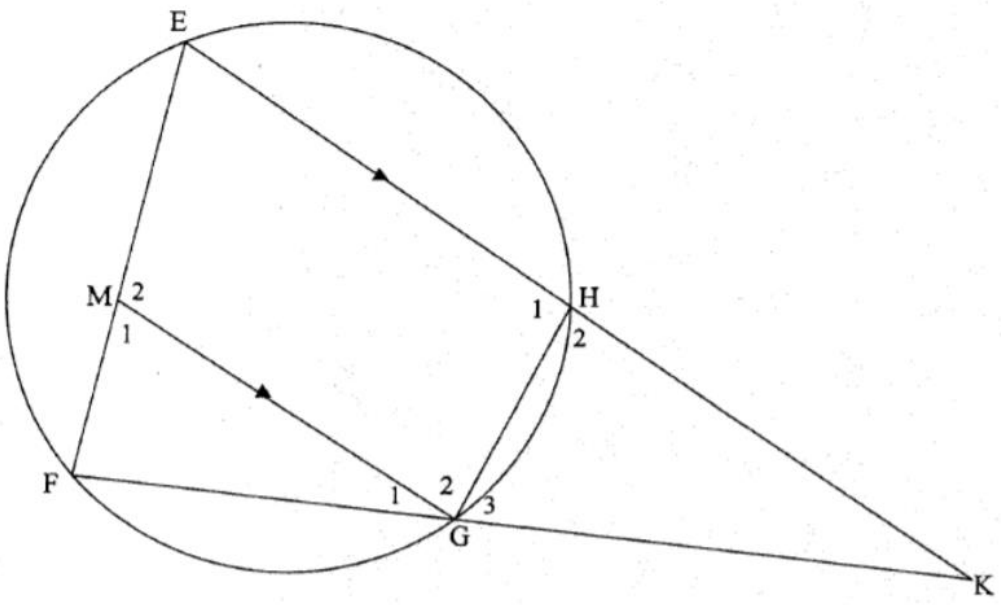
Euclidean Geometry

Question 1

In the diagram below, cyclic quadrilateral EFGH is drawn. Chord EH produced and chord FG produced meet at K. M is a point on EF such that MG || EK. Also KG = EF.



Prove that:

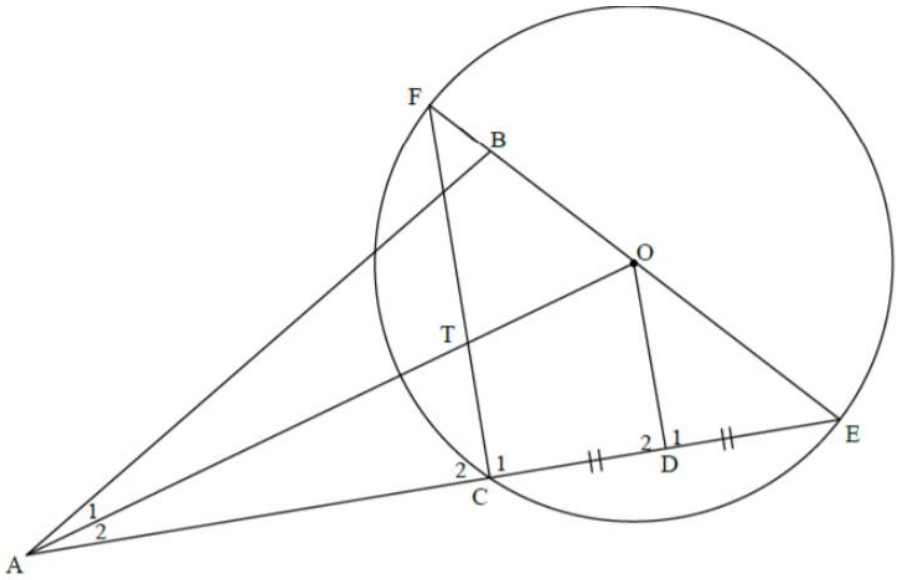
(a) $\Delta KGH \,|||\, \Delta KEF$ (3)

(b) $EF^2 = KE \,.\, GH$ (3)

(c) $KG^2 = EM \,.\, KF$ (3)

Question 2

In the diagram below, FBOE is a diameter of a circle with centre O. Chord EC produced meets line BA at A, outside the circle. D is the midpoint of CE. OD and FC are drawn. AFBC is a cyclic quadrilateral.



10.1 Prove, giving reasons, that:

10.1.1 $FC \parallel OD$ (4)

10.1.2 $\hat{DOE} = \hat{BAE}$ (3)

10.1.3 $AB \times OF = AE \times OD$ (5)