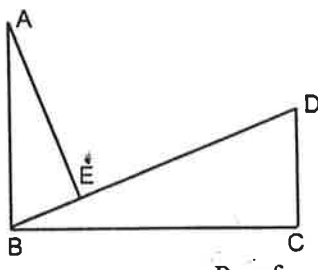


Proofs

[ 1)

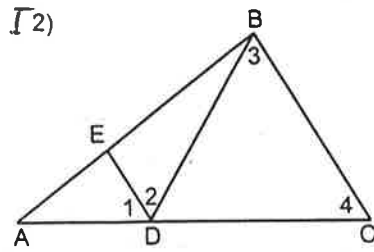


Given:  $AB \perp BC$   
 :  $AE \perp BD$ ,  
 $DC \perp BC$

Prove:  $\triangle ABE \sim \triangle BDC$

Proof

[ 2)

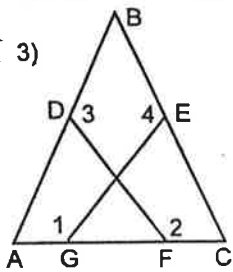


Given:  $\angle 1 = \angle 2$   
 :  $\angle 3 = \angle 4$

Prove:  $ED \parallel BC$

Proof

[ 3)

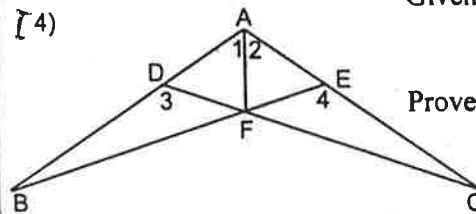


Given:  $\angle 1 = \angle 2$   
 :  $\angle 3 = \angle 4$

Prove:  $\triangle ABC$  is isosceles

Proof

[ 4)

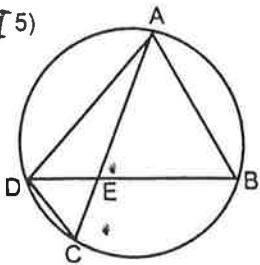


Given:  $\angle 1 = \angle 2$   
 :  $\angle 3 = \angle 4$

Prove:  $BF = CF$

Proof

[5)

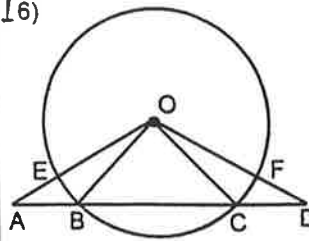


Given:  $DE = CE$

Prove:  $\triangle AEB$  is isosceles

Proof \_\_\_\_\_

[6)

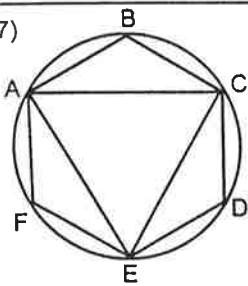


Given:  $\widehat{EB} = \widehat{CF}$

Prove:  $AB = CD$

Proof \_\_\_\_\_

[7)

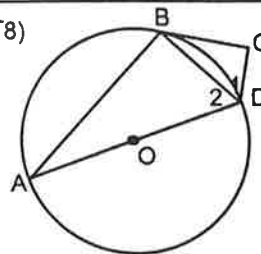


Given: regular hexagon  
ABCDEF

Prove:  $\triangle ACE$  is equilateral

Proof \_\_\_\_\_

[8)

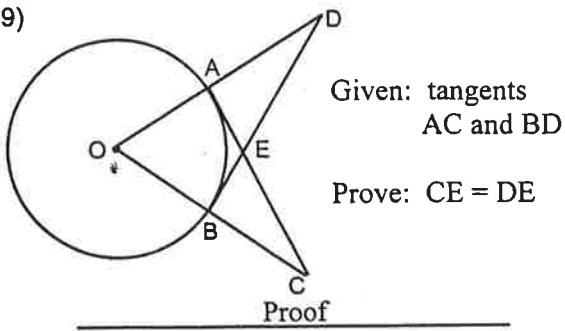


Given:  $\angle 1 = \angle 2$   
:  $BC$  is a tangent

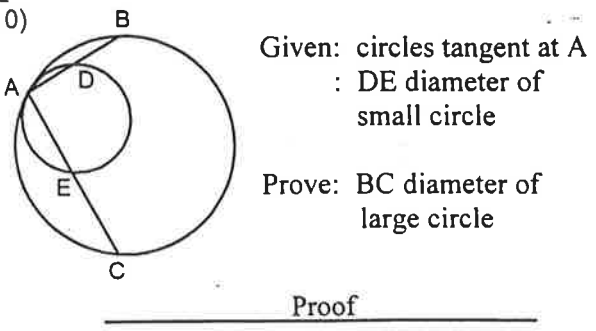
Prove:  $BC \perp CD$

Proof \_\_\_\_\_

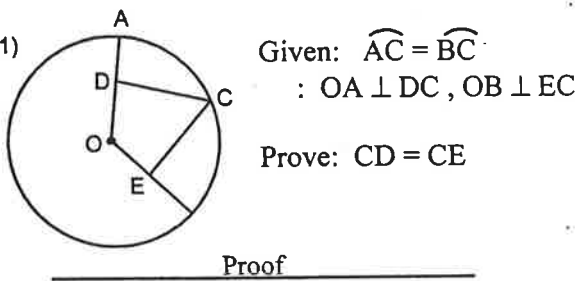
9)



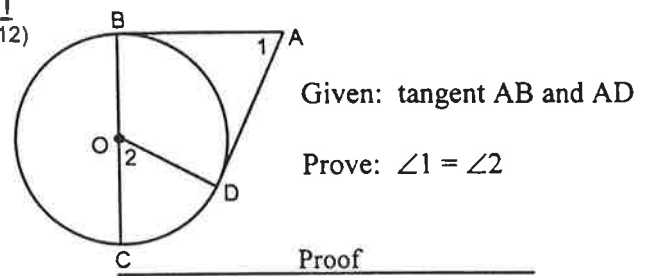
10)



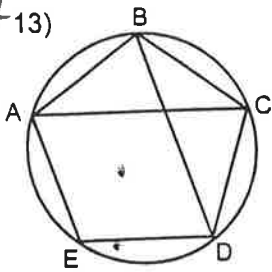
11)



12)



I 13)



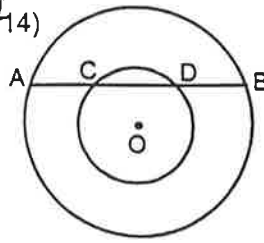
Given: regular pentagon  
ABCDE

Prove:  $AC = BD$

Proof

---

I 14)



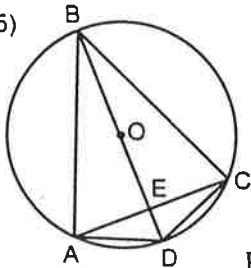
Given: two concentric circles  
:  $\overline{ACDB}$

Prove:  $AC = DB$

Proof

---

I 15)



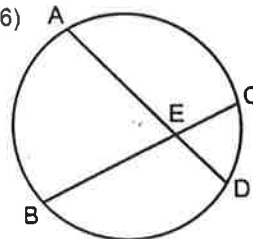
Given:  $AE = EC$

Prove:  $\triangle ABD = \triangle CBD$

Proof

---

I 16)



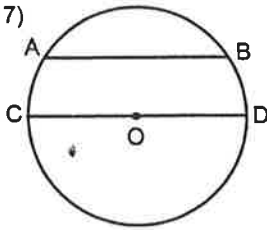
Given:  $AD = BC$

Prove:  $\triangle ABE$  is isosceles

Proof

---

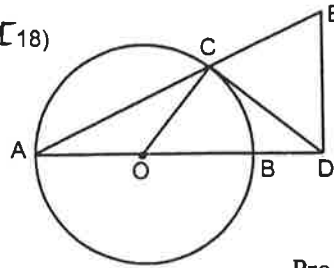
[ 17)



Given:  $AB \parallel CD$   
 Prove:  $\widehat{AC} = \widehat{BD}$

Proof

[ 18)

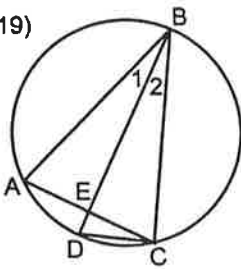


Given: tangent CD  
 :  $AD \perp DE$

Prove:  $\triangle CDE$  is isosceles

Proof

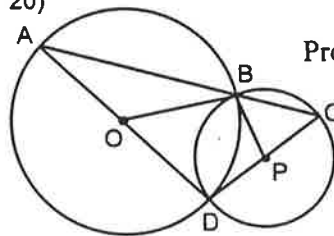
[ 19)



Given:  $\angle 1 = \angle 2$   
 Prove:  $\triangle ABE \sim \triangle DBC$

Proof

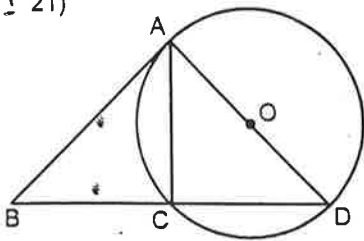
[ 20)



Prove:  $\angle OBP = \angle ODP$

Proof

I 21)

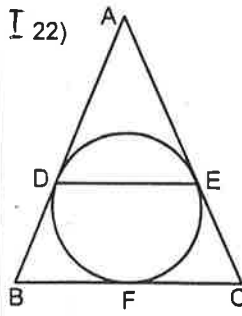


Given:  $AC = CD$   
: tangent  $AB$

Prove:  $BC = CD$

Proof

I 22)

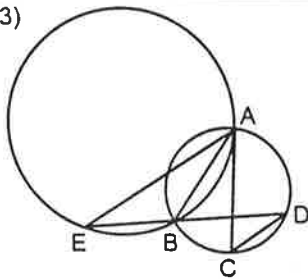


Given:  $AB = AC$   
: inscribed circle

Prove:  $DE \parallel BC$

Proof

I 23)

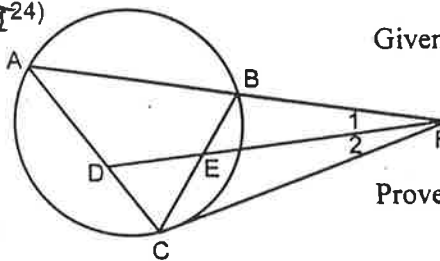


Given: tangent  $AC$

Prove:  $AE \parallel CD$

Proof

I 24)

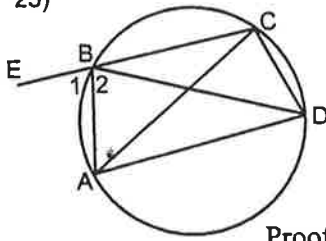


Given: tangent  $CF$   
:  $\angle 1 = \angle 2$

Prove:  $CD = CE$

Proof

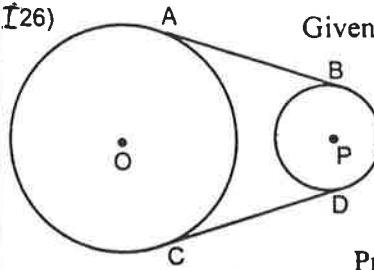
25)



Given:  $\overline{EBC}$   
 :  $\angle 1 = \angle 2$   
 Prove:  $AC = AD$

Proof

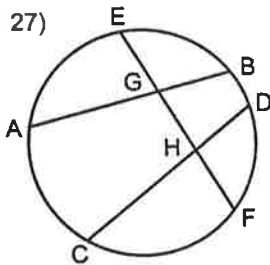
26)



Given: tangents AB and CD  
 Prove:  $AB = CD$

Proof

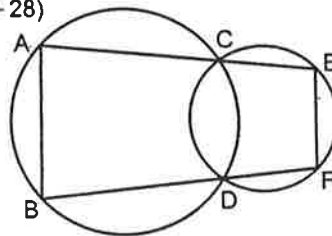
27)



Given:  $EG = GH = HF$   
 Prove:  $AG \cdot GB = CH \cdot HD$

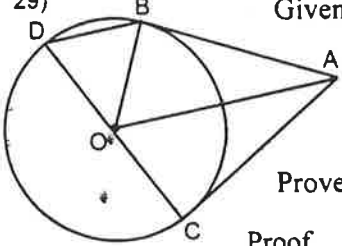
Proof

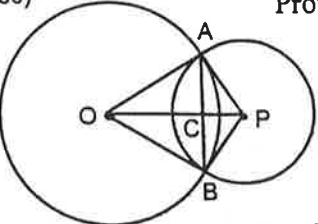
28)

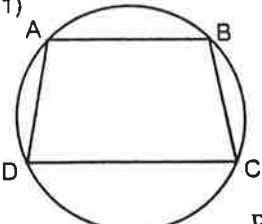


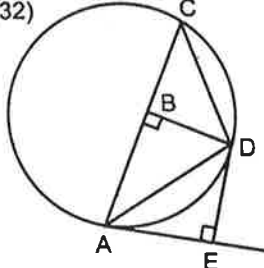
Prove:  $AB \parallel EF$

Proof

29)  Given: tangents AB and AC  
 Prove:  $DB \parallel OA$   
 Proof \_\_\_\_\_

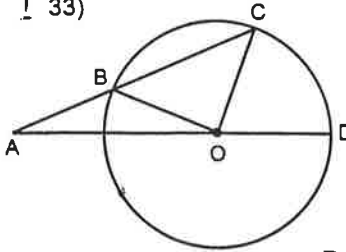
30)  Prove:  $OP \perp$  bisector of AB  
 Proof \_\_\_\_\_

31)  Given:  $AB \parallel CD$   
 Prove:  $\square ABCD$  is an isosceles trapezoid  
 Proof \_\_\_\_\_

32)  Given: tangent AF  
 $\therefore \widehat{AD} = \widehat{DC}$   
 $\therefore BD \perp AC, DE \perp AF$   
 Prove:  $BD = DE$   
 Proof \_\_\_\_\_



33)



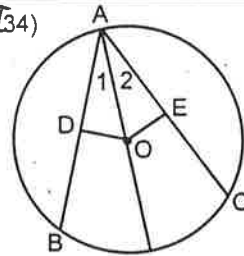
Given:  $AB = OB$

Prove:  $\angle A = \frac{1}{3} \angle COD$

(hint: do algebraically)

Proof

34)



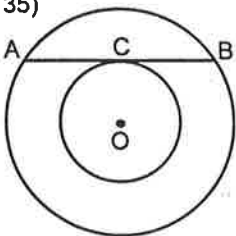
Given:  $\angle 1 = \angle 2$

:  $AB \perp DO, AC \perp EO$

Prove:  $AB = AC$

Proof

35)

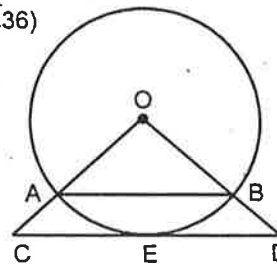


Given:  $AB$  is tangent to smaller of 2 concentric circles

Prove:  $AC = CB$

Proof

36)



Given:  $\widehat{AE} = \widehat{BE}$

: tangent  $CED$

Prove:  $AB \parallel CED$

Proof

I 37)

Given:  $\angle 1 = \angle 2$   
 :  $\widehat{DE} = \widehat{FE}$

Prove:  $BE = CE$

Proof

I 38)

Given: tangent BC  
 :  $AB = BC$

Prove:  $AO = DC$

Proof

I 39)

Given: tangents BC and DC

Prove:  $\triangle ABC = \triangle ADC$

Proof

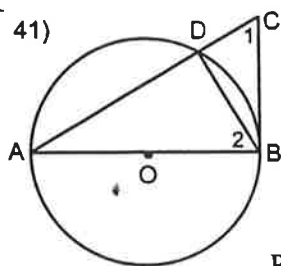
I 40)

Given:  $\angle 1 = \angle 2$

Prove:  $ED = EC$

Proof

I 41)

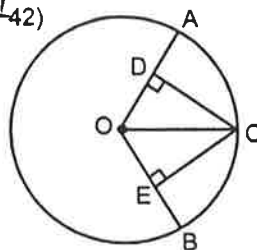


Given: tangent BC

Prove:  $\angle 1 = \angle 2$

Proof

I 42)

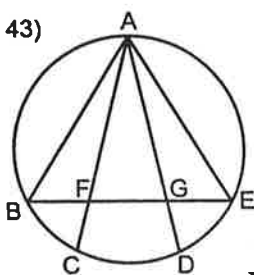


Given:  $CD \perp OA, CE \perp OB$   
:  $CD = CE$

Prove:  $\widehat{AC} = \widehat{BC}$

Proof

I 43)

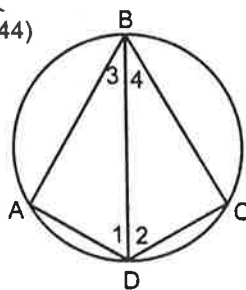


Given:  $\widehat{AB} = \widehat{AE}$   
:  $\widehat{BC} = \widehat{DE}$

Prove:  $\triangle AFG$  is isosceles

Proof

I 44)

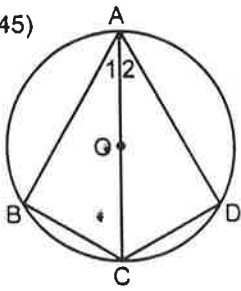


Given:  $\angle 1 = \angle 2$   
:  $\angle 3 = \angle 4$

Prove: BD is a diameter

Proof

I 45)

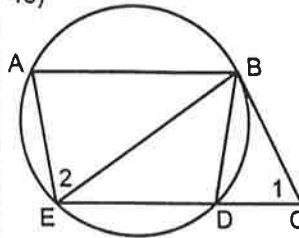


Given:  $\angle 1 = \angle 2$

Prove:  $AB = AD$

Proof \_\_\_\_\_

I 46)

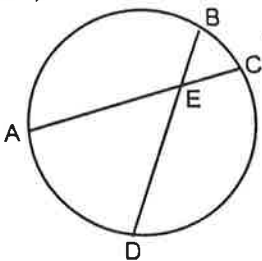


Given: tangent BC  
:  $\angle 1 = \angle 2$

Prove:  $AB \parallel EC$

Proof \_\_\_\_\_

I 47)

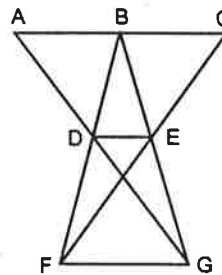


Given:  $\widehat{AB} = \widehat{CD}$

Prove:  $AE = DE$

Proof \_\_\_\_\_

I 48)



Given:  $\angle CFG = \angle AGF$   
:  $ABC \parallel DE \parallel FG$

Prove:  $\square ADEC$  is concyclic  
(hint: prove algebraically)

Proof \_\_\_\_\_