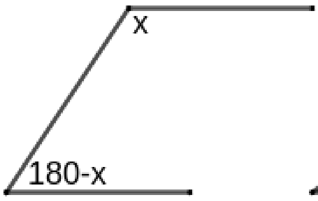
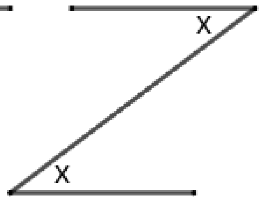
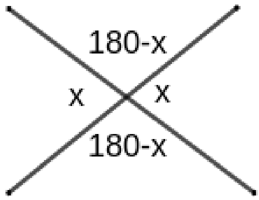
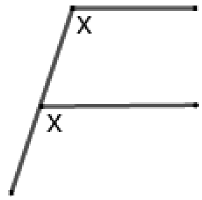
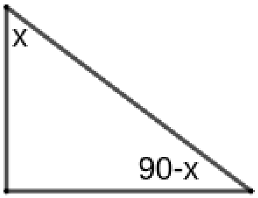
SSLC 2019
CIRCLE AND TANGENTS
CONCEPTS-PROBLEMS-PROOFS

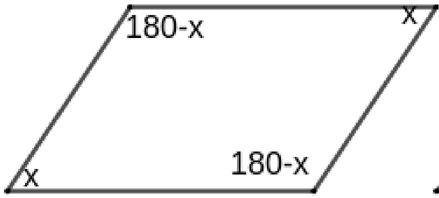


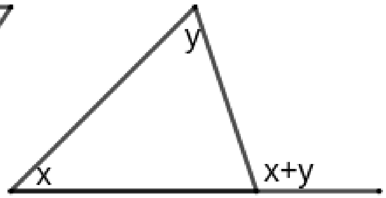


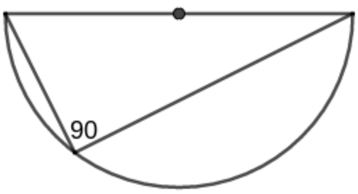


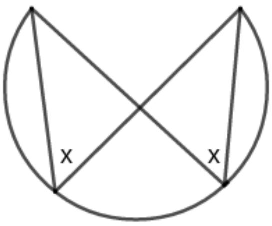


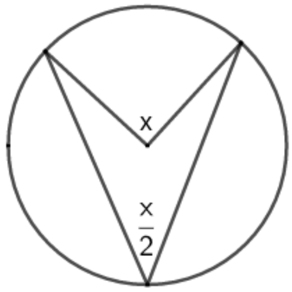


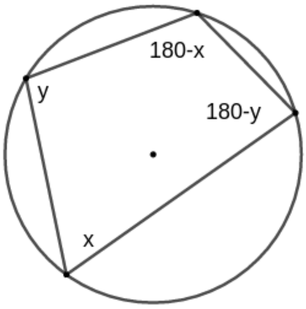


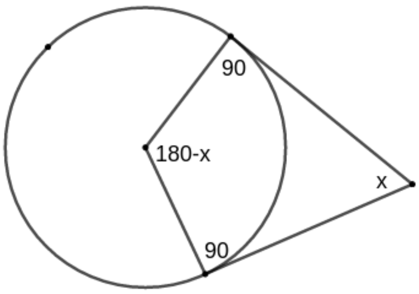


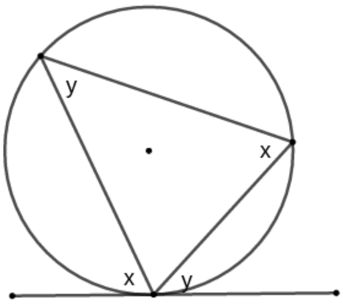


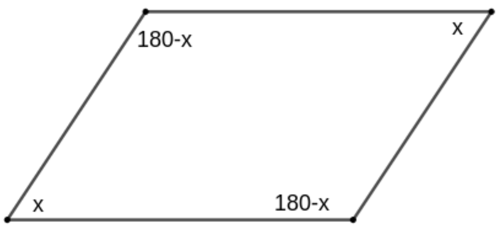


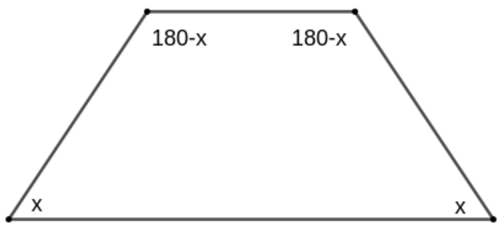








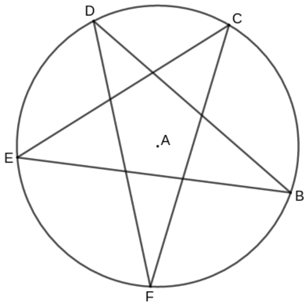




GOPIKRISHNAN.VK
GHSS KALLINGALPADAM

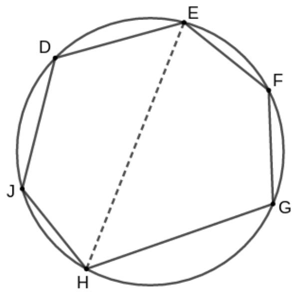
CIRCLES AND TANGENTS CONCEPTS AND PROOF

1)Prove that <B+<C+<D+<E+<F=180^0



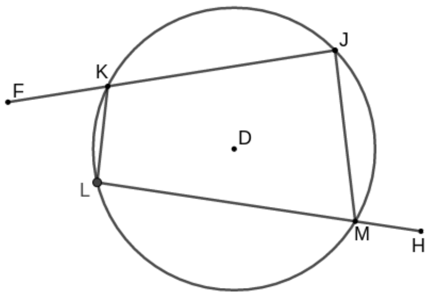
Hint: <B = ½ (------) , <C = ½(------) etc
<B + <C + <D +.........=   ½(------) = -------

2) Prove that <D + <F + <H = <E + <G + <J



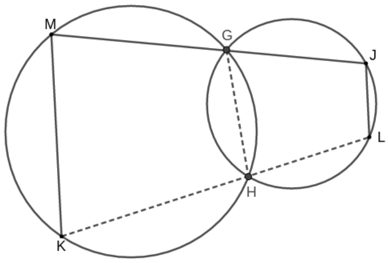
Hint: Let <JHE =a , <GHE = b ,Then<D = ---------
<F = ---------. <D+<F+ <H = -----------------.
hence <J+<E+<G = 720 - (------)

3)Prove that <FKL + <HMJ = 180^0



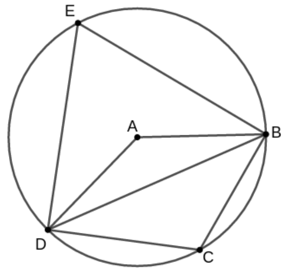
Hint: Let < JMH = x , then <LMH = -------
<LKJ =------ , <FKL = ------.

4)In figure MK ║ LJ. Show that H is in the line KL



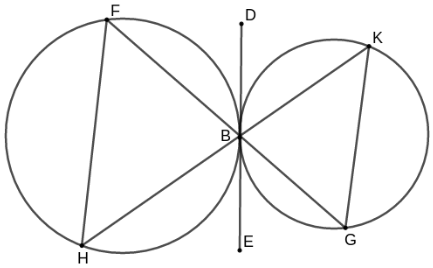
Hint: draw GH , KH , LH . Let <M = x , then <J = ---------- , because MK ║ JL.
Also <KHG = ----------- , <GHL= -----------
<KHG+<LHG = --------- , hence KHL is ---------

5) Prove that <DEB +<ADB= 90^0
and <DCB-<ADB = 90^0.



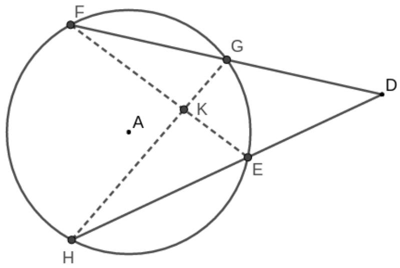
Hint: Let <ADB = x , then <ABD = -----------
<DAB = ------------. <DEB = ------------------
<DCB = -------------

6)In figure Show that FH ║ KG



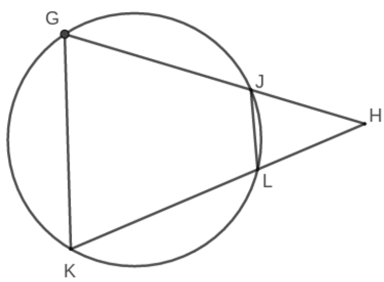
Hint: Let <H=x then <FBD= ----- , <EBG =------
<BKG=-------. Hence HF , GK are ----------

7) In figure show that <FKH+<FDH = <FAH



Hint: Let <FAH = x , then <FGH = -----------,
<FEH =------- ,< KGD = ------- , <KED=---------
But < KGD+<KED+<GKE+<GDE = -------------
<GKE+<GDE = --------. <FKH+<GDE =---------

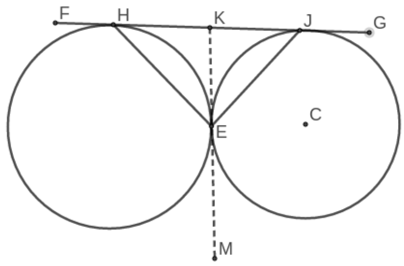
8)In figure,HJ=HL .show that GJ=KL , GK║JL



Hint: we have HJ x HG = --------x--------
given HJ=HL , hence ------ = --------
Let <HJL=x , then <HLJ=---------
<JLK = ----------- <JGK=-------- , hence JL║GK
GJLK is a ---------------------

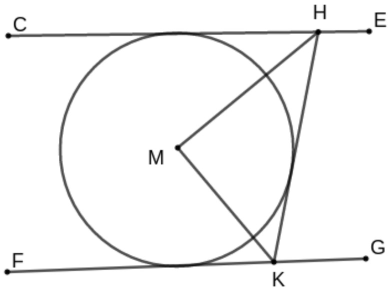
CIRCLES AND TANGENTS CONCEPTS AND PROOF

9)In figure ,Show that HEJ is a right triangle.



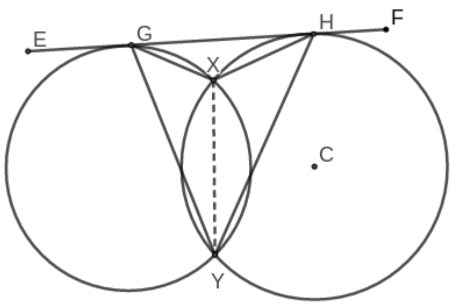
Hint:Let <HEK = x , <JEK = y then
<KHE=----------, <KJE = ------------
but <HEJ+<EJH+<JHE = -----------
hence x + y = --------. <HEJ = --------

10)In figure, Show that HMK is a right triangle.



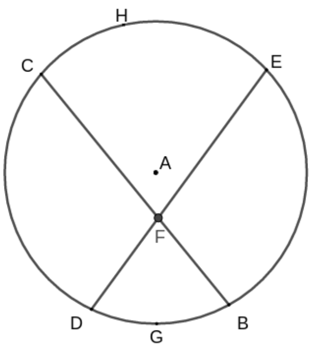
Hint: Let <MHK= x , <MKH= y . Then
< M = ---------- ., <MHC= ------- <MKF= -------
Given CE ║ FG hence ,<CHK+<FKH = ---------
2x+2y = -------,hence x + y = ------, <M=-------

11)Show that <GXH+<GYH = 180^0.



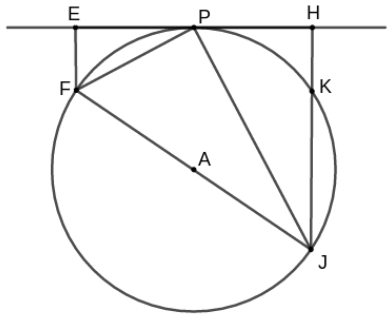
Hint: Let <HGX = x , <GHX = y , then
<GYX=-------,HYX=-------<GYH=--------
Also , <GXH = -------------

12) In figure A is centre. Show that
<CAE+<DAB = 2<CFE



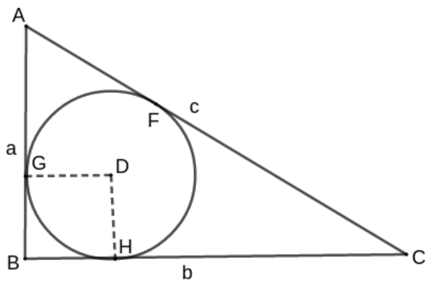
Hint: join CD. <D = ½(------) , <C = ½(-------)
but ,<CFE = <D + <C (Exterior angle law)
hence < CFE = ½ (------+ ------)
2(<CFE) = ----------+-----------

13) EH is a tangent. <PEF=<PHJ=90^0 . Show that $FJ^2 = EF^2 + EP^2 + PH^2 + HJ^2$.



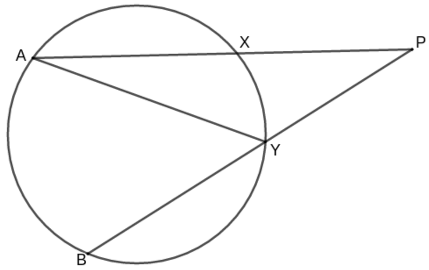
Hint: Since A is centre <FPJ = ----------
By pythagorus theorem,
$FP^2 = EF^2 + EP^2$, PJ^2 = ------------------
FJ^2 = ------------------ = -----+-------+------+-------

14)In figure show that In-radius of the right triangle equals ½(a+b-c)



Hint: Let radius GD=r. Then BH = r , BG= r
HC = b-r , CF = b-r. Similarly GA=---------
AF = ------------. But we have AF+FC = c .
Hence r = -------

15)Prove that difference of central angles of small arcs AB an CD is double of <P



Hint: Let O be the centre. We have <AYB = <A + <P
hence <P = <AYB - <A
= ½<AOB - ½(----------)
2<P = (------------) - <XOY