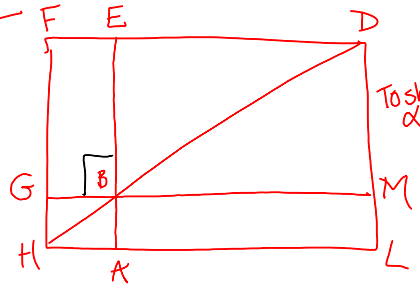
Ch3 #7



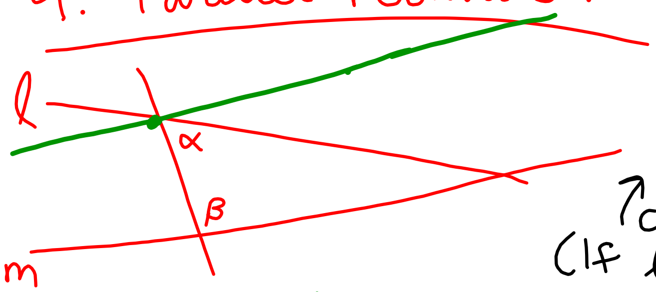

AB - given
BEFG - given
To show:
$\alpha BEFG = \alpha ABML$

Proof:
$FD = HL$ $HD = HD$ $\Rightarrow \triangle DFH \cong \triangle HLD$
$FH = DL$ (GB = HA, GH = BA, HB = HB) by SSS congruency
$\triangle HGB \cong \triangle BAH$
$\triangle BED \cong \triangle DMB$
ED = BM
EB = DM
BD = BD

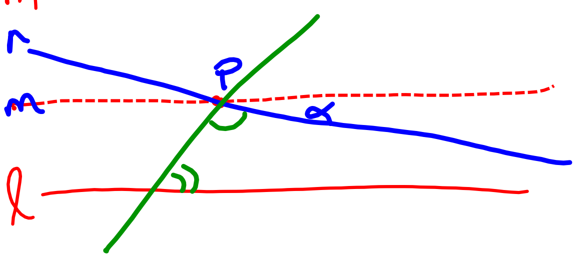
$\alpha \triangle DFH = \alpha \triangle HLD$
$\alpha \triangle BED = \alpha \triangle DMB$
$\alpha \triangle HGB = \alpha \triangle BAH$

$\alpha DFH = \alpha \triangle HGB + \alpha \triangle BED + \alpha BEFG$
$\alpha \triangle HLD = \alpha \triangle BAH + \alpha \triangle DMB + \alpha ABML$
$\Rightarrow$
$\alpha \triangle HGB + \alpha \triangle BED + \alpha BEFG = \alpha \triangle BAH + \alpha \triangle DMB + \alpha ABML$
Substitute & subtract
$\alpha BEFG = \alpha ABML$

## 9. Parallel Postulate:

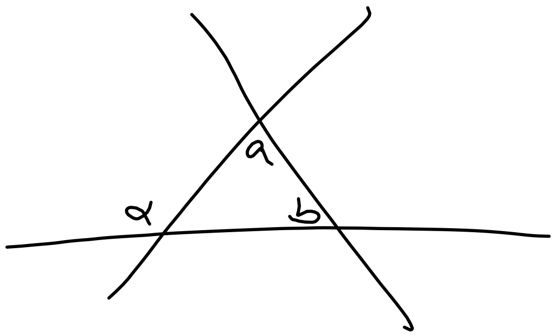


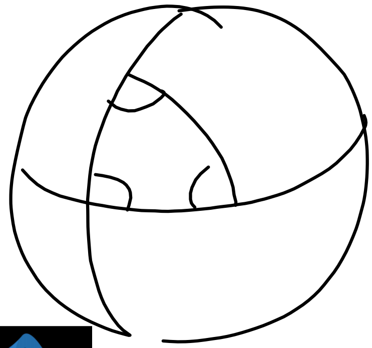

Euclid
If $\alpha + \beta < 180°$,
then $l$ & $m$ intersect
contrapositive of
(If $l \parallel m$, then $\alpha + \beta = 180°$)




Playfair: through a point not on a given line, there is exactly one line parallel to it.

suppose line $n \neq m$ passes through point $P$.
$\Rightarrow \alpha \neq 0$



$\alpha > a$

$\alpha > b$