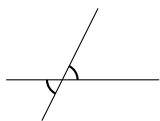


REFERENCE TABLE FOR
EUCLID'S ELEMENTS BOOK I

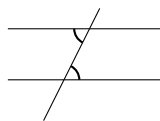
Viktor Bläsjö

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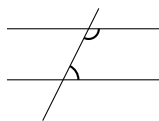
Prop.	Construction	Theorem
1	draw equilateral \triangle	
2	move segment	
3	cut off given length	
4		SAS \triangle congruence ⊥
5		isosceles $\triangle \Rightarrow$ base angles equal
7		SSS uniqueness ⊥
8		SSS \triangle congruence
9	bisect angle	
10	bisect segment	
11	draw perpendicular	
13		angle on one side of straight line = 2r
14		angle on one side = $2\text{r} \Rightarrow$ straight line ⊥
15		vertical angles equal
16		\triangle external angle $>$ each opposite internal angle
22	draw \triangle from three segments	
23	move angle	
26		ASA \triangle congruence ⊥
27		alternate angles equal \Rightarrow parallel ⊥
29		parallel \Rightarrow alternate angles equal, ... internal angles = 2r ⊥
30		parallel to same \Rightarrow parallel to each other
31	draw parallel through point	
32		\triangle angle sum = 2r
34		$\square \Rightarrow$ opposite sides, angles equal; diagonal bisects
35		\square w same base, height \Rightarrow equal area
37		\triangle w same base, height \Rightarrow equal area
41		\square area = $2 \times$ corresponding \triangle area
46	draw a square	
47		right-angle $\triangle \Rightarrow a^2 + b^2 = c^2$
48		$a^2 + b^2 = c^2 \Rightarrow$ right-angle \triangle



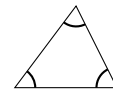
vertical angles
(X angles)



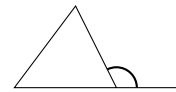
alternate angles
(Z angles)



internal angles
(F angles)



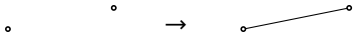
internal angles



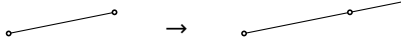
external angle

CONSTRUCTIONS

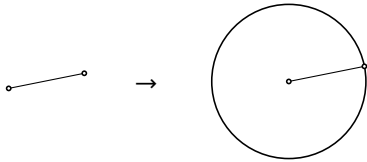
Postulate 1: draw line between points.



Postulate 2: extend line.



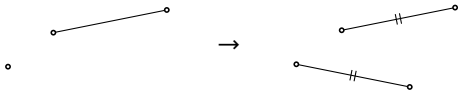
Postulate 3: draw circle.



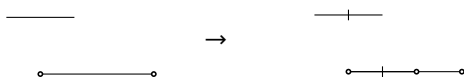
Proposition 1: draw equilateral Δ .



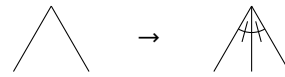
Proposition 2: move segment.



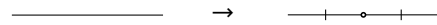
Proposition 3: cut off given length.



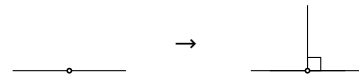
Proposition 9: bisect angle.



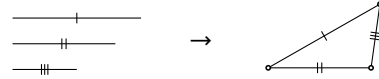
Proposition 10: bisect segment.



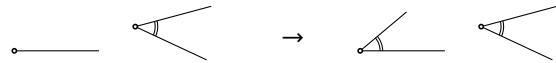
Proposition 11: draw perpendicular.



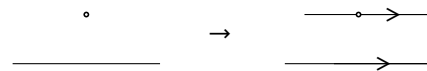
Proposition 22: draw Δ from three segments.



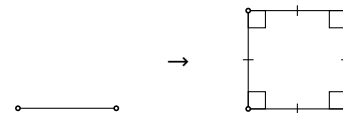
Proposition 23: move angle.



Proposition 31: draw parallel through point.



Proposition 46: draw a square.

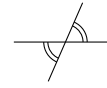


INFERENCECS

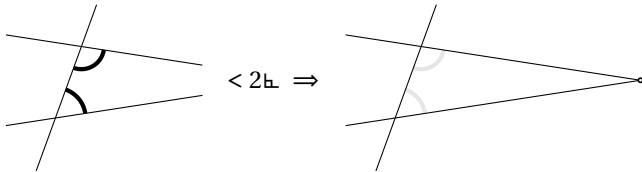
Postulate 4: identity of right angles.

$$\sphericalangle = \sphericalangle$$

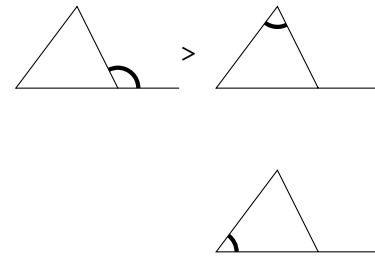
Proposition 15: vertical angles equal.



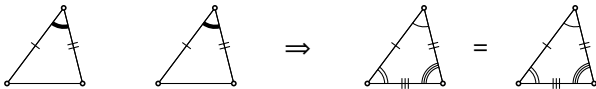
Postulate 5: condition for crossing.



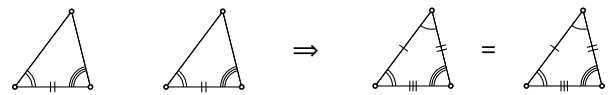
Proposition 16: \triangle external angle $>$ each opposite internal angle.



Proposition 4: SAS \triangle congruence.



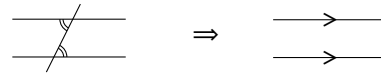
Proposition 26: ASA \triangle congruence.



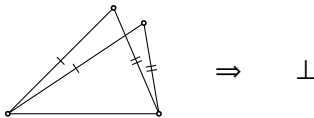
Proposition 5: isosceles $\triangle \Rightarrow$ base angles equal.



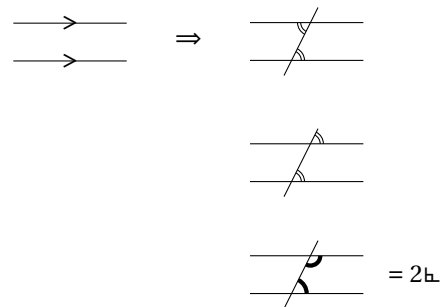
Proposition 27: alternate angles equal \Rightarrow parallel.



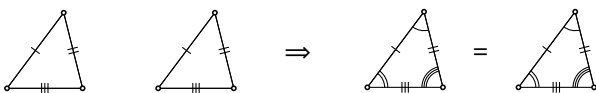
Proposition 7: SSS uniqueness.



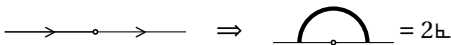
Proposition 29: parallel \Rightarrow alternate angles equal, ... internal angles = 2r .



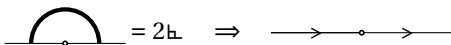
Proposition 8: SSS \triangle congruence.



Proposition 13: angle on one side of straight line = 2r .



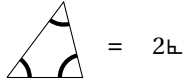
Proposition 14: angle on one side = $2\text{r} \Rightarrow$ straight line.



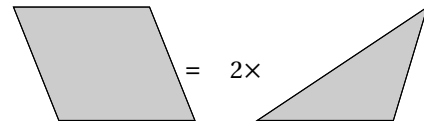
Proposition 30: parallel to same \Rightarrow parallel to each other.



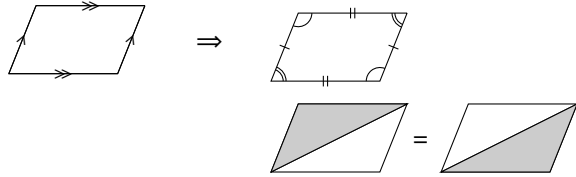
Proposition 32: \triangle angle sum = 2r .



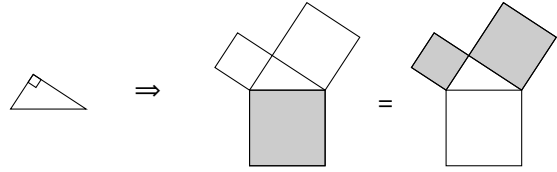
Proposition 41: \square area = $2\times$ corresponding \triangle area.



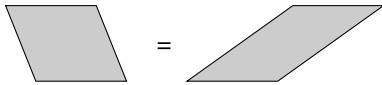
Proposition 34: $\square \Rightarrow$ opposite sides, angles equal; diagonal bisects.



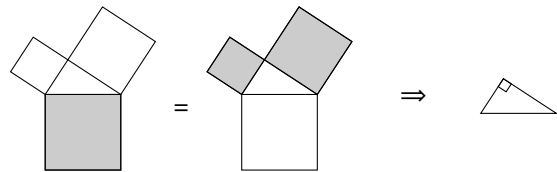
Proposition 47: right-angle $\triangle \Rightarrow a^2 + b^2 = c^2$.



Proposition 35: \square w same base, height \Rightarrow equal area.



Proposition 48: $a^2 + b^2 = c^2 \Rightarrow$ right-angle \triangle .



Proposition 37: \triangle w same base, height \Rightarrow equal area.

