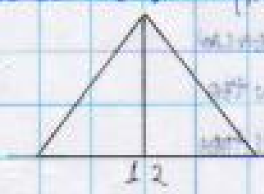
$A = \pi r^2$.

With an understanding of postulational thinking, and the concepts of congruence, similarity and equality, such as we have sought to convey, readers who desire to know more of the machinery of plane geometry will find satisfaction in reading any text on the subject.

Problems — Plane Geometry

02/12/2018

1. Two angles whose sum is a right angle are said to be complementary. Follow the method of proof that vertical angles are equal and show that the complements of two equal angles are equal to each other, i.e., if ∠1 and ∠2 are complementary, and ∠3 and ∠4 are complementary, and ∠4 = ∠2, then prove ∠1 = ∠3.



$1+2 = 180°$
$2+3 = 180°$
$3+4 = 180°$

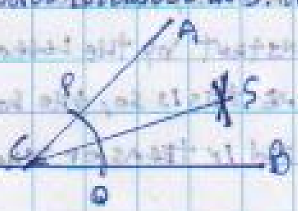
$\angle 1 + \angle 2 = 180°$
$\angle 4 + \angle 3 = 180°$
$\angle 1 + \angle 2 + \angle 4 + \angle 3 = 360°$
$\angle 1 + \angle 3 = 360° - (\angle 4 + \angle 2)$

$\angle 1 + \angle 3 = 180$; $\angle 1 = 180 - \angle 3 = 90$; $\angle 3 = 180 - \angle 1 = 90$

$\angle 3 = \angle 1$ $(\angle 1 = \frac{\pi}{2} - \angle 3 = \frac{\pi}{4})$ $(\angle 1 = 180 - \angle 2)$ $(\angle 3 = 180 - \angle 4)$

$\angle 3 = \angle 1$ $(\angle 1 = 180 - \angle 2)$ & $(\angle 3 = 180 - \angle 2)$

2. The following construction is used to bisect (cut into two equal parts) an angle. With the vertex C as center, an arc is drawn cutting the sides at P and Q. With P and Q as centers and using the same radius, draw two arcs which intersect at S. The line CS bisects the angle. Prove this by showing that the construction produces two congruent triangles. (Be sure not to use the angles in your proof; they must be shown equal as result of congruence, not a reason for it).



$\overline{QS} = \overline{PS}$ $\overline{CPS} = \overline{CQS}$
$\overline{QC} = \overline{PC}$

31/12
* Definition of bisection
Requires on problem
3. $\overline{ABC} = \overline{DBC}$

pg 57

3. Given: straight line AOB, with CO bisecting ∠AOD. To Prove: EO perpendicular to OC.

04/12/2018

2020/10/13