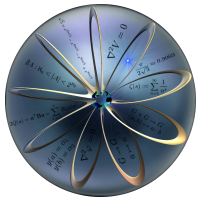

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supplementary angles

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Two angles are called *supplementary angles* of each other if the sum of their http://planetmath.org/AngleMeasuremeasures is equal to the straight angle π, http://planetmath.org/Iei.e. 180°.

For example, when two lines intersect each other, they the plane into four disjoint http://planetmath.org/Domain2domains corresponding to four convex angles; then any of these angles has a supplementary angle on either side of it (see linear pair). However, two angles that are supplementary to each other do not need to have a common side — see http://planetmath.org/Ege.g. an entry regarding http://planetmath.org/OpposingAnglesInACyclicQuadrilateralAreSuppl angles in a cyclic quadrilateral.

Supplementary angles have always equal sines, but the cosines are opposite numbers:

$$\sin(\pi-\alpha) \;=\; \sin\alpha, \qquad \cos(\pi-\alpha) \;=\; -\cos\alpha$$

These formulae may be proved by using the subtraction formulas of sine and cosine.