primitive permutation group

Canonical name	PrimitivePermutationGroup
Date of creation	2013-03-22 14:00:49
Last modified on	2013-03-22 14:00:49
Owner	Thomas Heye (1234)
Last modified by	Thomas Heye (1234)
Numerical id	20
Author	Thomas Heye (1234)
Entry type	Definition
Classification	msc 20B15

Let X be a set, and G a transitive permutation group on X. Then G is said to be a *primitive permutation group* if it has no nontrivial `http://planetmath.org/BlockSyst`

For example, the symmetric group S_4 is a primitive permutation group on $\{1, 2, 3, 4\}$.

Note that D_8 is not a primitive permutation group on the vertices of a square, because the pairs of opposite points form a nontrivial block.

It can be shown that a transitive permutation group G on a set X is primitive if and only if the stabilizer $\mathrm{Stab}_G(x)$ is a maximal subgroup of G for all $x \in X$.