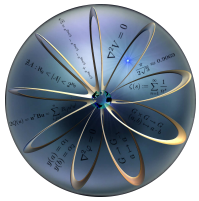

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doubly transitive groups are primitive

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Theorem. *Every doubly transitive group is* `http://planetmath.org/PrimativeTransitivePerm`

Proof. Let G acting on X be doubly transitive. To show the action is , we must show that all blocks are trivial blocks; to do this, it suffices to show that any block containing more than one element is all of X. So choose a block Y with two distinct elements y_1, y_2. Given an arbitrary $x \in X$, since G is doubly transitive, we can choose $\sigma \in G$ such that

$$\sigma \cdot (y_1, y_2) = (y_1, x)$$

But then $\sigma \cdot Y \cap Y \neq \emptyset$, since y_1 is in both. Thus $\sigma \cdot Y = Y$, so $x \in Y$ as well. So $Y = X$ and we are done. □