

Brézis, Haïm

How to recognize constant functions. Connections with Sobolev spaces. (English. Russian original) [Zbl 1072.46020](#)

Russ. Math. Surv. 57, No. 4, 693-708 (2002); translation from Usp. Mat. Nauk 57, No. 4, 59-74 (2002).

A new characterization of Sobolev spaces is given by means of integral conditions. The question of when a measurable function is a constant under various integral conditions is discussed and a new criterion is derived for a function $f \in L^p$ to belong to $W^{1,p}$ or to BV . Interesting connections are derived for the space of functions with vanishing mean oscillation and open problems are outlined. This is a nicely written paper which includes a wealth of interesting ideas.

Reviewer: [Thomas Sonar \(Braunschweig\)](#)

MSC:

[46E35](#) Sobolev spaces and other spaces of “smooth” functions, embedding theorems, trace theorems

[26A45](#) Functions of bounded variation, generalizations

Cited in **6** Reviews
Cited in **58** Documents

Keywords:

[Sobolev spaces](#); [functions of bounded variation](#)

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