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In base twelve, and in base eight, "15" is a prime, and so is its 'reversal' "51".

There are more prime pairs such as 15 and 51 (base eight or twelve) in an odd-number base than in an even-number base. In an even-number base any prime beginning with an even digit, (such as 23 in base eight), cannot be a prime when it is reversed.

Here (for example) is a list of some primes in base eleven and their prime reversals:

(7 stands for ten in base eleven)

Table A

12	21	16	61	18	81	27	72
29	92	34	43	37	73	49	94
56	65	67	76	89	98	97	79

Reversed primes - with "Two-Way" Notation

In base eight, "15" is a prime, and so is its reversal "51". If we express these in two-way notation, base eight, however, these are written $2\bar{3}$ and $1\bar{3}1$ and are not reversals. In base ten we have the pair of primes 79 and 97; in two-way notation these become $1\bar{2}\bar{1}$ and $10\bar{3}$.

Table B shows the primes from table A in two-way notation:

Table B

12	21	$2\bar{5}$	$1\bar{5}1$	$2\bar{3}$	$1\bar{3}1$	$3\bar{4}$	$1\bar{4}2$
$3\bar{2}$	$1\bar{2}2$	34	43	$4\bar{1}$	$1\bar{1}3$	$5\bar{2}$	$1\bar{2}4$
$1\bar{5}\bar{5}$	$1\bar{5}5$	$1\bar{4}\bar{4}$	$1\bar{3}\bar{5}$	$1\bar{2}\bar{2}$	$1\bar{1}\bar{3}$	$1\bar{1}\bar{1}$	$10\bar{2}$

Which begs the question - are there primes (in two-way notation) which when reversed give us other primes?

Here's one example (apart from the obvious, palindromic, $1\bar{3}1$):

$1\bar{1}3$ is a prime in base eleven, and so is its reversal, $3\bar{1}1$.

Notes:

The Dozenal Society of Great Britain uses symbols suggested by Sir Isaac Pitman for ten and eleven in bases greater than ten. These are 7 for ten and 8 for eleven.

Two-Way notation, created by J.Halcro Johnston, uses negative digits, such as $\bar{2}$, with positional notation. In base ten, for example, $1\bar{2}$ stands for "ten less two units" i.e. 8. See other articles on the DSGB site; <http://www.dsgb.orbix.co.uk>