6. What is the sum of the digits of the largest 4-digit palindromic number which is divisible by 15? [Palindromic numbers read the same backwards and forwards, e.g. 7227.]

A 18   B 20   C 24   D 30   E 36

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6.   **C**   In order to be a multiple of 15, a number must be a multiple both of 3 and of 5. So its units digit must be 0 or 5. However, the units digit must also equal the thousands digit and this cannot be 0, so the required number is of the form '$5aa5$'. The largest such four-digit numbers are 5995, 5885, 5775. Their digit sums are 28, 26, 24 respectively. In order to be a multiple of 3, the digit sum of a number must also be a multiple of 3, so 5775 is the required number. The sum of its digits is 24.