



13. Positive integers  $m$  and  $n$  are such that  $2^m + 2^n = 1280$ . What is the value of  $m + n$ ?
- A 14                      B 16                      C 18                      D 32                      E 640

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13. C Since  $1280 = 2^8 \times 5 = 2^8(2^0 + 2^2) = 2^8 + 2^{10}$ , we may take  $m=8$  and  $n = 10$  (or vice versa) to get  $m + n = 8 + 10 = 18$ . It is easy to check that there are no other possibilities.