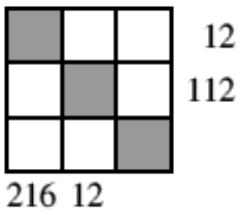
10. The digits from 1 to 9 are to be written in the nine cells of the 3 × 3 grid shown, one digit in each cell.
The product of the three digits in the first row is 12.
The product of the three digits in the second row is 112.
The product of the three digits in the first column is 216.
The product of the three digits in the second column is 12.
What is the product of the digits in the shaded cells?



A 24 B 30 C 36 D 48 E 140

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10. B None of the products for the first two rows and first two columns contains a factor of 5, so the bottom right cell must contain the 5. The prime factorisation of 112 is $2^4 \times 7$ and, as 7 is not a factor of 216 or 12, then 7 must be in the right cell of the middle row. The remaining 2^4 must be the product of two different numbers, namely 8 and 2. The 2 must be in the centre cell as 8 is not a factor of 12. The grid is now as shown above. The prime factorisation of 216 is $2^3 \times 3^3$ and the 3^3 must be the product of a 3 and a 9. The 3 must be in the top left cell as the product of the top row is 12 which is not a multiple of 9. Thus, the product of the three shaded cells is 3 × 2 × 5 which is 30. The completed grid is as shown on the right.

3	1	4	12
8	2	7	112
9	6	5	
216	12		