

The Product Rule for Counting *ramp up*

ANSWERS

a How many arrangements of A, B, C, D, E, F start with a vowel? 240 a choice for the first place	b How many three digit numbers are less than 250? 150 counting up to a limit	c How many odd four digit numbers use each of 2, 4, 6, 7 once? 6 only one digit can go last	d How many three digit numbers have only even digits? 100 a restriction and the zero rule
e How many three digit numbers have at least one digit 7? 252 at least one: all minus none	f How many arrangements of A, B, C, D, E have A and B next to each other? 48 a pair kept together	g How many arrangements of A, B, C, D, E do not have A next to B? 72 kept apart: all minus together	h How many different arrangements of A, A, B, C are there? 12 a repeated letter
i How many four digit multiples of 5 have four different digits? 952 two cases, added	j How many groups of 3 letters from A to G include A? 15 a choice with one item fixed	k How many three digit numbers have each digit larger than the one before it? 84 order forced: a choice	l How many arrangements of A, B, C, D, E, F have A somewhere before B? 360 one before another: by symmetry

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