

The Product Rule for Counting *ramp up*

ANSWERS

a A code is one of 4 letters then one of 7 digits. How many codes are there? <u>28</u> one from each of two lists	b Lists have 3, 4 and 5 items. How many ways can you pick one from each? <u>60</u> three lists	c How many two digit codes use the digits 1 to 9 if a digit can be used twice? <u>81</u> repeats allowed	d How many two digit codes use the digits 1 to 9 if no digit can be used twice? <u>72</u> no repeats: one fewer each time
e How many ways can you arrange A, B, C, D, E in a line? <u>120</u> arranging a whole set	f How many ways can you arrange 3 of the letters A, B, C, D, E in a line? <u>60</u> arranging part of a set	g How many three digit numbers are there? <u>900</u> zero cannot come first	h How many even three digit numbers are there? <u>450</u> a condition on the last digit
i How many three digit numbers have three different digits? <u>648</u> no zero first and no repeats	j The order does not matter. How many pairs can you choose from 6 items? <u>15</u> order does not matter: halve	k Two lists give 42 pairs. One list has 6 items. How many items has the other? <u>7</u> the product rule in reverse	l How many two digit codes from 1 to 6, with repeats, contain a 6? <u>11</u> at least one (all minus none)

The Maths Habit

The Product Rule for Counting *ramp up*

ANSWERS

a A code is one of 4 letters then one of 7 digits. How many codes are there? <u>28</u> one from each of two lists	b Lists have 3, 4 and 5 items. How many ways can you pick one from each? <u>60</u> three lists	c How many two digit codes use the digits 1 to 9 if a digit can be used twice? <u>81</u> repeats allowed	d How many two digit codes use the digits 1 to 9 if no digit can be used twice? <u>72</u> no repeats: one fewer each time
e How many ways can you arrange A, B, C, D, E in a line? <u>120</u> arranging a whole set	f How many ways can you arrange 3 of the letters A, B, C, D, E in a line? <u>60</u> arranging part of a set	g How many three digit numbers are there? <u>900</u> zero cannot come first	h How many even three digit numbers are there? <u>450</u> a condition on the last digit
i How many three digit numbers have three different digits? <u>648</u> no zero first and no repeats	j The order does not matter. How many pairs can you choose from 6 items? <u>15</u> order does not matter: halve	k Two lists give 42 pairs. One list has 6 items. How many items has the other? <u>7</u> the product rule in reverse	l How many two digit codes from 1 to 6, with repeats, contain a 6? <u>11</u> at least one (all minus none)

The Maths Habit