

STMC Training Crossnumber 1 - Solutions

2	3	3			4
	6		1	2	8
	8	6	2		5
8		2	5	6	
3	7	7		1	
6			2	0	9

Solution guide

- Every number in this grid has three digits, which restricts the possibilities for several clues.
- 4 Down is a power of, so must end 25, with first digit 1 or 6
- 8 Across is a power of 2 with middle digit 5, which is 256
- 9 Down is a Fibonacci number starting with a 6, which is 610
- 3 Down is the difference between 4 Down and 9 Down, and if 4 Down were 625 then 3 Down wouldn't have three digits, so 4 Down must be 125 giving 3 Down as 485
- 10 Across is a factor of 1131. 1131 is a multiple of 3, so 377 is a factor. This is the only three digit factor of 1131; any 3 digit factor gives a quotient of at most 11.31 when 1131 is divided by it, and 1131 is not a multiple of 2, 5, 7 or 11.
- 1 Across is the difference between 10 Across and 9 Down, which is 233.
- 5 Across is a value of x with $(x-a)^2-b^2=0$, so $x=a+b$ or $x=a-b$. Checking the last digit of 3 Down + 10 Across and of 3 Down – 10 Across, 5 Across must be 862.
- We've found all the digits of 6 Down from other clues, so 11 Across must be a factor of 627 using the clue for 6 Down. Checking factors, 11 Across must be 209.
- Now the clue for 11 Across means that 209 is the difference between 7 Down and 627. Checking the middle digit of $627+209$ and of $627-209$, 7 Down must be 836.
- 4 Across is a factor of $256 \times 233 = 2^8 \times 233$ with middle digit 2, which is 128.
- 2 Down is an anagram of 7 Down with first digit 3 and last digit 8, and must be 368.