

The table below represents 12 lines from a cache that uses fully associative mapping with a block size of 8.

Tag	000	001	010	011	100	101	110	111
10010100111001100101001010011	10	D8	90	58	00	88	10	98
11010001101111001110001010111	51	E9	A1	69	11	99	29	A9
01001010101001100011110010100	32	FA	B2	7A	22	AA	32	BA
10011101111110001011010110001	43	0B	C3	8B	33	BB	43	CB
01000100110001101100110001000	54	1C	D4	9C	44	CC	54	DC
00000100111011011010101011000	65	2D	E5	AD	55	DD	65	ED
10111101110101010101000111011	76	3E	F6	BE	66	EE	76	FE
01111010010111001101011011010	87	4F	07	CF	77	FF	87	0F
10100010001000101110100000101	90	58	10	D8	20	A8	30	B8
11100100110011110100010110101	A1	69	21	E9	31	B9	41	C9
00111001001001100101001100110	B2	7A	32	FA	42	CA	52	DA
10110110010110100111010101100	C3	8B	43	0B	53	DB	63	EB
(Column for prob. 5)	a	b	c	d	e	f	g	h

- Assuming no leading zeros are removed from the cache's tags, how many address lines does the processor that uses this cache have?
- Identify the physical memory address from which the shaded data (21_{16}) came.
- Using the table from the previous problem, identify the data value represented by each of the following physical addresses or indicate that the data is not visible in this portion of the cache.
 - 39265336_{16}
 - $BDD551D9_{16}$
- If the processor needed the value stored in physical memory address $A45312DE_{16}$, what tag would be stored with the corresponding block in the cache? (Note that this data is not currently visible in the lines of the table shown above.)
- In which column, i.e., a, b, c, d, e, f, g, and h would the data from address $A45312DE_{16}$ be found?