1. $K = 2^{10}$ (Kilo) $T = 2^{40}$ (Tera)
$M = 2^{20}$ (Mega) $P = 2^{50}$ (Peta)
$G = 2^{30}$ (Giga) $E = 2^{60}$ (Exa)

Number of Virtual Address Bits (n)	Number of Virtual Addresses (N)	Largest Possible Virtual Address
8	256	255
16	64K	64K - 1
32	4G	4G - 1
48	256T	256T - 1
64	16E	16E - 1

2.

(Address Size) n	(Page Size) $P = 2^p$	Number of PTEs
16	4K	$2^{16-12} = 2^4 = 16$
16	8K	$2^{16-13} = 2^3 = 8$
32	4K	$2^{32-12} = 2^{20} = 1M$
32	8K	$2^{32-13} = 2^{19} = 512K$

The size of each virtual page is 2^p bytes and each page in the system requires a PTE so that it can be indexed. Hence:

$$\# \text{PTEs} = \frac{2^n}{2^p} = 2^{n-p} = \# \text{pages\_in\_system}$$