1. a) Size of address = 2^32

Page size = 2^11

2^32 / 2^11 = 2^21 number of entries

b) Physical Memory = 2^9

Size of address = 2^9 + 2^10 + 2^10

Page size = 2^12

2^29 / 2^12 = 2^17 number of entries

1. a) Time taken to access memory space = 50 ns

Time taken to access page table = 50 ns

Paged memory reference takes 100 ns

b) 75% \* TLB hit-time + 25% \* TLB miss-time + 2 ns

75% \* 50 ns + 25% \* 100 ns + 2 ns = 62.5 ns