

Quiz 7

1. Name and define the three C's. Give one way reducing the number of misses in each category.

1. Conflict -- cache misses due to data being evicted from the cache. To reduce: increase associativity or cache size.
2. Capacity -- misses due to the application accessing more data than can fit in the cache. To reduce: restructure the application or increase capacity
3. Compulsory -- misses due to accessing data for the first time. To reduce -- increase cache line size or prefetch data

2. A cache on a machine with 32 bit addresses has 32byte lines, 4096 total lines. How many bits are in the offset, index, and tag.

1. offset: 5 bits; index: 12 bits; tag: 15 bits

3. The cache in #2 is made 4-way set associative. How many bits are in the index offset and tag?

1. offset: 5 bits; index: 10 bits; tag: 17 bits