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14 March 2016
CS 304

Homework 1

2.67
A. The code fails to comply with the C standard because it attempts to shift beyond the word size. In many systems the shift amount will be applied *mod* the word size so an attempt to shift by 32 with result in a $32 \mod 32 = 0$ shift.
B.

```
int int_size_is_32() {
        int i = 1 << 31;
        int j = ~i;
        return i > j;
}
```

C.

```
int int_size_is_32() {}
```

2.71
A. SAY WHY THIS DOESN'T WORK.
B.

```
int xbyte(packed_t word, int bytenum) {
        word = word << ((3 - bytenum) << 3);
        most_sig = (1 << 31) & word; // tells us what will be filled on the next rig
        word = word >> 24;
        return word - ((most_sig << 31) >> 24);
}
```

2.76
A. $(x << 4) + x$
B. $x - (x << 3)$
C. $(x << 6) - (x << 2)$
D. $(x << 4) - (x << 7)$

2.80
A. $\sim 0 << k$
B.

2.81