

3) (5 pts) ALG (Base Conversion)

Convert 375 in base 10 to binary. **Please show your work and put a box around your final answer.**

```
2 | 375
2 | 187 R 1
2 | 93 R 1
2 | 46 R 1
2 | 23 R 0
2 | 11 R 1
2 | 5 R 1
2 | 2 R 1
2 | 1 R 0
```

375 in base 10 converts to 101110111_2 (in binary).

Alternate solution is to go through the list 256, 128, 64, 32, 16, 8, 4, 2, 1 and greedily subtract out the largest value possible from 375 until arriving at 0. (Though this method isn't taught in the class, it will be accepted.)

Grading: 5 pts for all correct solutions with reasonable work.

4 pts for any solution using a valid method with exactly 1 arithmetic error.

3 pts for any solution using a valid method with exactly 2 arithmetic errors.

2 pts for any solution that indicates repeated division by 2 but has other errors

1 pt for writing down some powers of 2 or any sort of valid scratch work.