UNIT TESTING EXERCISES SOLUTIONS

1 GETSMORTGAGE

Valid equivalence class: 1000 > = income <= 75,000

Invalid equivalence classes: income < 1000, income > 75,000

Input	Expected
999	invalid
1000	Valid
1001	Valid
10000	Valid
74999	Valid
75000	Valid
75001	invalid
100000	invalid

2 ISEVEN

Inputs 2, 4, 6 … 1000 will yield true and 1, 3, 5 … 999 will yield false.

Valid equivalence class: (even numbers): 2, 4, 6 … 1000

Valid equivalence class: (uneven numbers): 1, 3, 5 … 999

Invalid equivalence classes: number <= 0, number > 1000

Input	**Expected**
-2	invalid
-1	invalid
0	invalid
1	valid / false
2	valid / true
500	valid / true
501	valid / flase
999	valid / false
1000	valid / true
1001	invalid

3 GETNUMDAYSINMONTH

Month

Valid equivalence classes:

Months with 31 days
Months with 30 days
February with 28 days
February with 29 days

Invalid equivalence classes:

month < 1, month> 12

Year

Valid equivalence classes:

Leap years*
Non-leap years

Invalid equivalence classes:

year < 0, year > 2^{31}-1

Month + Year

Months with 31 days, non-leap year
Months with 31 days, leap year
Months with 30 days, non-leap year
Months with 30 days, leap year
Negative months (0)
Positive months (13)
February, non-leap year
February, leap year
Leap years divisible by 400
Non-leap years divisible by 100, but not with 400

** Leap year rule:*
All years that are a multiple of 4 (e.g. 1980, 1984) are leap years.
Exception: Years that are multiples of 100 are not leap years, unless there are also multiples of 400
Example: 1900 is not leap year, but 2000 is

Input	Expected
-1, -1	invalid
-1, 1900	invalid
-1, 2000	invalid
0, 0	invalid
0, 1900	invalid
0, 2000	invalid
1, -1	invalid
1, 0	valid / 31
1, 1900	valid / 31
1, 2000	valid / 31
2, 1900	valid / 28
2, 1901	valid / 28

2, 1984	valid / 29
2, 2000	valid / 29
4, 1900	valid / 30
4, 2000	valid / 30