1.
a)
i.) 50
ii.) Yes
iii.) No
iv.) Yes
b.) 500
c.) 1/2 the numbers of flips
d.)
i.) The number of ways to get heads
ii.) The total number of outcomes on a coin
iii.) 1/2
2.)
a.) HH TH HT TT
b.) 1/4
c.) 100
d.) 1/4 of 400
3.)
a.) HHH HHT HTH HTT
THH THT TTH TTT
b.) 1/8
c.) 3/8
d.) 3/8
e.) 1/8
f.) 4/8
g.) 4/8
h.) Equivalent
4.)
a.) 1,2,3,4,5,6
b.) 1/6
c.) 3/6
d.) 3/6
e.) Equivalent
f.) 4/6
g.) 2/6
h.) Answer g is 1/2 answer h
i.) They sum to 1
5.)
a.) No
b.) 4/6 and 2/6 for red and blue respectively
6.)
Answers may vary
7.)
1,1 1,2 1,3 1,4 1,5 1,6
2,1 2,2 2,3 2,4 2,5 2,6
3,1 3,2 3,3 3,4 3,5 3,6

.

.

..............................6,6

b.) 1/36

c.) 1/36

d.) 6/36

e.) (5+4+3+2+1)/36 or 15/36

f.) 3/6

g.) 1/2 * 1/2 or 1/4

8.) Yes, you are twice as likely to win the car if you switch.

Explanation: The likelihood of the car being behind any specific door is 1/3 at the start. Let us group the doors now into two distinct groups–the door we chose and the doors we did not choose. There is a 1/3 chance it is behind our door; there is a 2/3 chance it is behind the other door (*This never changes). When the host opens one of the other doors we still know that the sum of the probability of the two doors is 2/3, but we also know that the probability of one of the doors is exactly 0/3 now. Therefore the probability of the door we did not choose is 2/3 and is the best choice.