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 CST 370
 Extra Credit Homework
 February 22, 2016

1a. 15

1b. 0

1c. 0

1d. The recursion will never end because the end condition ($n=0$) will never be met.

$$2 \ 1 + (1/2 + 1/4 + 1/8 + \dots) = 1 + 1 = 2$$

3. $O(\log n)$, $O(\log \log n)$, $O(n)$, $O(n \log n)$, $O(n^2)$

4. Sorts A in ascending order, $O(n^2)$

5. a. In each case, the problem size is the number of people in the room. b. Alg 1: one question, Alg 2: ask everyone, n questions; Alg 3 ask everyone, however it requires k questions to ask each k th person. So there will be $1 + 2 + 3 \dots n$ questions asked $\dots n(n+1)/2$ c. constant, linear, quadratic

6.

0	97	1	3	5	0
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0	97	1		3	5	0
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0		97	1		3		5	0
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0		97		1		3		5		0
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0		1	97		3		0	5
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0	1	97		0	3	5
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0	0	1	3	5	97
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7.

0	1	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	1	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0	0	0	0	0
0	0	0	0	0	1	0	0	1	1	0	0	0
0	0	0	0	0	1	0	0	0	1	0	1	1
0	0	0	0	0	0	1	0	0	0	1	0	0
0	0	0	0	0	0	1	1	0	0	1	1	0
0	0	0	0	0	0	0	0	1	1	0	1	0
0	0	0	0	0	0	0	1	0	1	1	0	1
0	0	0	0	0	0	0	1	0	0	0	1	0