

Binary Search Anaylysis

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|---------|---|------|------|------|------|------|
| N | = | 5000 | 5000 | 5000 | 5000 | |
| nEquals | = | 11 | 12 | 12 | 11 | |
| nAdd | = | 43 | 47 | 47 | 43 | |
| nLog | = | 20 | 22 | 22 | 20 | |
| Total | = | 74 | 81 | 81 | 74 | 77.5 |

| | | | | | | |
|---------|---|-------|-------|-------|-------|-------|
| N | = | 10000 | 10000 | 10000 | 10000 | |
| nEquals | = | 12 | 13 | 12 | 12 | |
| nAdd | = | 47 | 51 | 47 | 47 | |
| nLog | = | 22 | 24 | 22 | 22 | |
| Total | = | 81 | 88 | 81 | 81 | 82.75 |

| | | | | | | |
|---------|---|-------|-------|-------|-------|-------|
| N | = | 20000 | 20000 | 20000 | 20000 | |
| nEquals | = | 14 | 13 | 11 | 14 | |
| nAdd | = | 55 | 51 | 43 | 55 | |
| nLog | = | 26 | 24 | 21 | 26 | |
| Total | = | 95 | 88 | 75 | 95 | 88.25 |

| | | | | | | |
|---------|---|-------|-------|-------|-------|-----|
| N | = | 40000 | 40000 | 40000 | 40000 | |
| nEquals | = | 15 | 15 | 15 | 15 | |
| nAdd | = | 59 | 59 | 59 | 59 | |
| nLog | = | 28 | 28 | 28 | 28 | |
| Total | = | 102 | 102 | 102 | 102 | 102 |

| | | | | | | |
|---------|---|-------|-------|-------|-------|--------|
| N | = | 80000 | 80000 | 80000 | 80000 | |
| nEquals | = | 16 | 16 | 15 | 15 | |
| nAdd | = | 63 | 63 | 59 | 59 | |
| nLog | = | 30 | 29 | 28 | 28 | |
| Total | = | 109 | 108 | 102 | 102 | 105.25 |

| | | | | | |
|-------|------|-------|-------|-------|--------|
| N | 5000 | 10000 | 20000 | 40000 | 80000 |
| Total | 77.5 | 82.75 | 88.25 | 102 | 105.25 |

Binary Search Analysis

$y = 10.784\ln(x) + 76.2$
 $R^2 = 0.9604$

