Worksheet – Binary Search

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
-4	-2	0	3	4	6	10	14	15	18	20	24	26	27	29	30	31	44	47	49

For the following, include **which** elements are checked (give values not indicies).

1. How many elements must be checked to try to find the value 18 in the above array?

2. How many elements must be checked to try to find the value -4 in the array above?

3. How many elements must be checked to try to find the value 49 in the array above?

4. How many elements must be checked to try to find the value 100 in the array above?

5. Given that a data set has **n** elements, what is the best case that could occur when binary searching for an element?

6. What would be the complexity of the best case for binary search?

7. Given that a data set has **n** elements, what is the worst case that could occur when binary searching for an element?

8. What would be the complexity of the worst case for binary search?

9. Given that a data set has **n** elements, what is the average case that could occur when binary searching for an element?

10. What would be the complexity of the average case for binary search?

11. Although in the general case binary search is more efficient than linear search, give two example situations where linear search would be more efficient than binary search. In addition to describing your two examples, give two concrete examples.