

There are 10 problems each worth 10 points on 5 pages.
Make your reasoning clear.

① Apply Quick sort to 53861724. How many comparisons did you make?

<u>3124</u> , 5867,	7 comparisons
12, <u>34</u> , 5 <u>67</u> , 8	5 comparisons
12, 34, 56, 78	2
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② Solve the recurrence relation $a_0 = 5, a_k = 3a_{k-1}$.

$$a_0 = 5$$

$$a_1 = 3 \cdot 5$$

$$a_2 = 3^2 \cdot 5$$

$$a_3 = 3^3 \cdot 5$$

$$\therefore a_k = 3^k \cdot 5$$