1. $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\cdots=\infty$.

2. $\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\cdots=1$.

3.
$$\frac{1}{2}\geqslant\frac{1}{2},$$
$$\frac{1}{3}+\frac{1}{4}\geqslant\frac{1}{4}+\frac{1}{4}=2\times\frac{1}{4}=\frac{1}{2},$$
$$\frac{1}{5}+\frac{1}{6}+\frac{1}{7}+\frac{1}{8}\geqslant\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=4\times\frac{1}{8}=\frac{1}{2},$$
$$\frac{1}{9}+\frac{1}{10}+\frac{1}{11}+\frac{1}{12}+\frac{1}{13}+\frac{1}{14}+\frac{1}{15}+\frac{1}{16}\geqslant\frac{1}{16}+\frac{1}{16}+\frac{1}{16}+\frac{1}{16}+\frac{1}{16}+\frac{1}{16}+\frac{1}{16}+\frac{1}{16}=8\times\frac{1}{16}=\frac{1}{2},$$
$$\vdots$$

4. Famous Eratosthenes Sieve.

5. Easy.

6. Respectively, $\lfloor\frac{100}{2}\rfloor=50$, $\lfloor\frac{100}{3}\rfloor=33$, $\lfloor\frac{100}{7}\rfloor=14$, $\lfloor\frac{N}{k}\rfloor\leqslant\frac{N}{k}$, $\lfloor\frac{N}{2}\rfloor+\lfloor\frac{N}{3}\rfloor\leqslant\frac{N}{2}+\frac{N}{3}$, $\lfloor\frac{N}{p}\rfloor+\lfloor\frac{N}{q}\rfloor\leqslant\frac{N}{p}+\frac{N}{q}$, $\lfloor\frac{N}{p}\rfloor+\lfloor\frac{N}{q}\rfloor+\lfloor\frac{N}{r}\rfloor\leqslant\frac{N}{p}+\frac{N}{q}+\frac{N}{r}$.

   They can use a calcultor to find $\frac{100}{7}=14.2857$, then $\lfloor\frac{100}{7}\rfloor$, the integer part of $\frac{100}{7}$, which is the greatest integer $\leqslant\frac{100}{7}$ is just 14.

7. Easy.

8. $B\leqslant\frac{N}{p_{k+1}}+\frac{N}{p_{k+2}}+\frac{N}{p_{k+3}}+\cdots\leqslant\frac{N}{2}$.

9. Respectively, $\underbrace{2\times2\times\cdots\times2}_{k\ \text{times}}=2^k$, $\sqrt{N}$, $2^k\sqrt{N}$.