

2023/2/3

$$\begin{aligned}
 (1) &= \frac{1}{(25-1) \times (25+1)} + \frac{1}{(27-1) \times (27+1)} + \frac{1}{(29-1) \times (29+1)} + \frac{1}{(31-1) \times (31+1)} + \\
 &\quad \frac{1}{(33-1) \times (33+1)} + \frac{1}{(35-1) \times (35+1)} \\
 &= \frac{1}{24 \times 26} + \frac{1}{26 \times 28} + \frac{1}{28 \times 30} + \frac{1}{30 \times 32} + \frac{1}{32 \times 34} + \frac{1}{34 \times 36} \\
 &= \frac{1}{2} \times \left\{ \left( \frac{1}{24} - \frac{1}{26} \right) + \left( \frac{1}{26} - \frac{1}{28} \right) + \left( \frac{1}{28} - \frac{1}{30} \right) + \left( \frac{1}{30} - \frac{1}{32} \right) + \left( \frac{1}{32} - \frac{1}{34} \right) + \left( \frac{1}{34} - \frac{1}{36} \right) \right\} \\
 &= \frac{1}{2} \times \left( \frac{1}{24} - \frac{1}{36} \right) \\
 &= \frac{1}{144} \dots (\text{答})
 \end{aligned}$$

$$\begin{aligned}
 (2) &= \frac{1}{2} \times \left\{ \left( \frac{1}{1 \times 2} - \frac{1}{2 \times 3} \right) + \left( \frac{1}{2 \times 3} - \frac{1}{3 \times 4} \right) + \left( \frac{1}{3 \times 4} - \frac{1}{4 \times 5} \right) + \left( \frac{1}{4 \times 5} - \frac{1}{5 \times 6} \right) + \left( \frac{1}{5 \times 6} - \frac{1}{6 \times 7} \right) + \right. \\
 &\quad \left. \left( \frac{1}{6 \times 7} - \frac{1}{7 \times 8} \right) \right\} \times \frac{1}{3} \times \left\{ (8 \times 9 \times 10 - 7 \times 8 \times 9) + (9 \times 10 \times 11 - 8 \times 9 \times \right. \\
 &\quad 10) + (10 \times 11 \times 12 - 9 \times 10 \times 11) + (11 \times 12 \times 13 - 10 \times 11 \times \\
 &\quad 12) + (12 \times 13 \times 14 - 11 \times 12 \times 13) \left. \right\} \\
 &= \frac{1}{2} \times \left( \frac{1}{2} - \frac{1}{56} \right) \times \frac{1}{3} \times (12 \times 13 \times 14 - 7 \times 8 \times 9)
 \end{aligned}$$

$$= \frac{1}{2} \times \frac{27}{56} \times \frac{1}{3} \times 12 \times 14 \times (13 - 3)$$

$$= 135 \dots (\text{答})$$