ステップ1　分母が連続する整数の場合

1　（　　）にあてはまる数を書きなさい。

(1) $\frac{1}{2}-\frac{1}{3}=\frac{(\quad)-(\quad)}{2\times 3}=\frac{1}{(\quad)}$

(2) $\frac{1}{3}-\frac{1}{4}=\frac{(\quad)-(\quad)}{3\times 4}=\frac{1}{(\quad)}$

(3) $\frac{1}{4}-\frac{1}{5}=\frac{(\quad)-(\quad)}{4\times 5}=\frac{1}{(\quad)}$

(4) $\frac{1}{5}-\frac{1}{6}=\frac{(\quad)-(\quad)}{5\times 6}=\frac{1}{(\quad)}$

(5) $\frac{1}{6}-\frac{1}{7}=\frac{(\quad)-(\quad)}{6\times 7}=\frac{1}{(\quad)}$

2 1の逆の操作をします。（　　）にあてはまる数を書きなさい。

(1) $\frac{1}{6}=\frac{(\quad)-(\quad)}{2\times 3}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

どちらが大きいか、
気をつけよう！

(2) $\frac{1}{12}=\frac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

(3) $\frac{1}{20}=\frac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

(4) $\frac{1}{30}=\frac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

(5) $\frac{1}{42}=\frac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

単位分数の差に分解したわけです。

3 （　　）にあてはまる数を書きなさい。

(1) $\frac{1}{1\times 2}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

単位分数の差に分解します。

(2) $\frac{1}{2\times 3}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

(3) $\frac{1}{3\times 4}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

(4) $\frac{1}{4\times 5}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

(5) $\frac{1}{5\times 6}=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

4　（　　）にあてはまる数を書きなさい。

(1)　$\dfrac{1}{2\times3}+\dfrac{1}{3\times4}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{(\quad)}{(\quad)}$

同じ数を引いて足しているので、相殺されます。

(2)　$\dfrac{1}{3\times4}+\dfrac{1}{4\times5}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{(\quad)}{(\quad)}$

(3) $\dfrac{1}{1\times 2}+\dfrac{1}{2\times 3}+\dfrac{1}{3\times 4}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{(\quad)}{(\quad)}$

同じ数を引いて足しているので、相殺されます。

(4) $\dfrac{1}{2\times 3}+\dfrac{1}{3\times 4}+\dfrac{1}{4\times 5}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{(\quad)}{(\quad)}$

(5) $\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+\frac{1}{20}$

$=\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}+\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}+\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}$

$=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

$=\frac{(\quad)}{(\quad)}$

(6) $\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\frac{1}{30}$

$=\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}+\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}+\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}+\frac{1}{(\quad)(\quad)}-\frac{1}{(\quad)(\quad)}$

$=\frac{1}{(\quad)}-\frac{1}{(\quad)}$

$=\frac{(\quad)}{(\quad)}$

5 $\frac{1}{1\times2}=\frac{1}{1}-\frac{1}{2}$になることを利用して、次の計算をしなさい。

$$\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+\cdots+\frac{1}{9\times10}$$

6 $\frac{1}{1\times2}=\frac{1}{1}-\frac{1}{2}$になることを利用して、次の計算をしなさい。

$$\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\cdots+\frac{1}{90}+\frac{1}{110}$$

ステップ2　分母が連続する奇数の場合①

7　（　　）にあてはまる数を書きなさい。

(1) $\frac{1}{3}-\frac{1}{5}=\frac{(\quad)-(\quad)}{3\times5}=\frac{(\quad)}{3\times5}$

(2) $\frac{1}{5}-\frac{1}{7}=\frac{(\quad)-(\quad)}{5\times7}=\frac{(\quad)}{5\times7}$

(3) $\frac{1}{7}-\frac{1}{9}=\frac{(\quad)-(\quad)}{7\times9}=\frac{(\quad)}{7\times9}$

(4) $\frac{1}{9}-\frac{1}{11}=\frac{(\quad)-(\quad)}{9\times11}=\frac{(\quad)}{9\times11}$

(5) $\frac{1}{11}-\frac{1}{13}=\frac{(\quad)-(\quad)}{11\times13}=\frac{(\quad)}{11\times13}$

8 ㋐の逆の操作をします。（　　）にあてはまる数を書きなさい。

(1) $\dfrac{2}{15}=\dfrac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

(2) $\dfrac{2}{35}=\dfrac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

(3) $\dfrac{2}{63}=\dfrac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

(4) $\dfrac{2}{99}=\dfrac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

(5) $\dfrac{2}{3}=\dfrac{(\quad)-(\quad)}{(\quad)\times(\quad)}=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

9 （　　）にあてはまる数を書きなさい。

(1) $\dfrac{2}{3}+\dfrac{2}{15}+\dfrac{2}{35}+\dfrac{2}{63}$

$=\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}+\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}+\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{(\quad)}{(\quad)}$

(2) $\dfrac{2}{3}+\dfrac{2}{15}+\dfrac{2}{35}+\dfrac{2}{63}+\dfrac{2}{99}$

$=\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}+\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}+\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}+\dfrac{1}{(\quad)(\quad)}-\dfrac{1}{(\quad)(\quad)}$

$=\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}$

$=\dfrac{(\quad)}{(\quad)}$

ステップ3　分母が連続する奇数の場合②

10　（　　）にあてはまる数を書きなさい。

(1) $\dfrac{1}{3\times5}=\left(\dfrac{1}{3}-\dfrac{1}{5}\right)\times\dfrac{1}{(\quad)}$

(2) $\dfrac{1}{5\times7}=\left(\dfrac{1}{5}-\dfrac{1}{7}\right)\times\dfrac{1}{(\quad)}$

(3) $\dfrac{1}{7\times9}=\left(\dfrac{1}{7}-\dfrac{1}{9}\right)\times\dfrac{1}{(\quad)}$

(4) $\dfrac{1}{9\times11}=\left(\dfrac{1}{9}-\dfrac{1}{11}\right)\times\dfrac{1}{(\quad)}$

(5) $\dfrac{1}{1\times3}=\left(\dfrac{1}{1}-\dfrac{1}{3}\right)\times\dfrac{1}{(\quad)}$

11　（　　）にあてはまる数を書きなさい。

(1) $\frac{1}{3\times5}=\left(\frac{1}{(\quad)}-\frac{1}{(\quad)}\right)\times\frac{1}{(\quad)}$

(2) $\frac{1}{5\times7}=\left(\frac{1}{(\quad)}-\frac{1}{(\quad)}\right)\times\frac{1}{(\quad)}$

(3) $\frac{1}{7\times9}=\left(\frac{1}{(\quad)}-\frac{1}{(\quad)}\right)\times\frac{1}{(\quad)}$

(4) $\frac{1}{9\times11}=\left(\frac{1}{(\quad)}-\frac{1}{(\quad)}\right)\times\frac{1}{(\quad)}$

(5) $\frac{1}{1\times3}=\left(\frac{1}{(\quad)}-\frac{1}{(\quad)}\right)\times\frac{1}{(\quad)}$

12　（　　）にあてはまる数を書きなさい。

(1)　$\dfrac{1}{3\times5}+\dfrac{1}{5\times7}$

$=\left(\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}\right)\times\dfrac{1}{2}+\left(\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}\right)\times\dfrac{1}{2}$

$=\left(\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}+\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}\right)\times\dfrac{1}{2}$

$=\left(\dfrac{1}{(\quad)}-\dfrac{1}{(\quad)}\right)\times\dfrac{1}{2}$

$=\dfrac{(\quad)}{(\quad)}$

(2) $\dfrac{1}{3\times5}+\dfrac{1}{5\times7}+\dfrac{1}{7\times9}+\dfrac{1}{9\times11}$

$=\left(\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}\right)\times\dfrac{1}{(\ \ )}+\left(\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}\right)\times\dfrac{1}{(\ \ )}$

$+\left(\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}\right)\times\dfrac{1}{(\ \ )}+\left(\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}\right)\times\dfrac{1}{(\ \ )}$

$=\left(\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}+\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}+\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}+\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}\right)\times\dfrac{1}{(\ \ )}$

$=\left(\dfrac{1}{(\ \ )}-\dfrac{1}{(\ \ )}\right)\times\dfrac{1}{(\ \ )}$

$=\dfrac{(\ \ )}{(\ \ )}$

(3) $\frac{1}{1\times3}+\frac{1}{3\times5}+\frac{1}{5\times7}+\frac{1}{7\times9}+\frac{1}{9\times11}+\frac{1}{11\times13}+\frac{1}{13\times15}+\frac{1}{15\times17}$

$=\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}$

$+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}$

$+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}$

$=\left(\frac{1}{(\ )}-\frac{1}{(\ )}+\frac{1}{(\ )}-\frac{1}{(\ )}+\frac{1}{(\ )}-\frac{1}{(\ )}+\frac{1}{(\ )}-\frac{1}{(\ )}\right.$

$\left.+\frac{1}{(\ )}-\frac{1}{(\ )}+\frac{1}{(\ )}-\frac{1}{(\ )}+\frac{1}{(\ )}-\frac{1}{(\ )}+\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}$

$=\left(\frac{1}{(\ )}-\frac{1}{(\ )}\right)\times\frac{1}{(\ )}$

$=\frac{(\ )}{(\ )}$

13 $\frac{1}{1\times3}=(\frac{1}{1}-\frac{1}{3})\times\frac{1}{2}$ になることを利用して、次の計算をしなさい。

$$\frac{1}{1\times3}+\frac{1}{3\times5}+\frac{1}{5\times7}+\cdots+\frac{1}{17\times19}$$

14 $\frac{1}{1\times3}=(\frac{1}{1}-\frac{1}{3})\times\frac{1}{2}$ になることを利用して、次の計算をしなさい。

$$\frac{1}{3}+\frac{1}{15}+\frac{1}{35}+\frac{1}{63}+\frac{1}{99}+\frac{1}{143}$$

ステップ4　【発展】分母が連続する3つの整数

15　（　　）にあてはまる数を書きなさい。

(1) $\frac{1}{1\times2}-\frac{1}{2\times3}=\frac{(\quad)-(\quad)}{1\times2\times3}=\frac{(\quad)}{1\times2\times3}$

(2) $\frac{1}{2\times3}-\frac{1}{3\times4}=\frac{(\quad)-(\quad)}{2\times3\times4}=\frac{(\quad)}{2\times3\times4}$

(3) $\frac{1}{3\times4}-\frac{1}{4\times5}=\frac{(\quad)-(\quad)}{3\times4\times5}=\frac{(\quad)}{3\times4\times5}$

(4) $\frac{1}{4\times5}-\frac{1}{5\times6}=\frac{(\quad)-(\quad)}{4\times5\times6}=\frac{(\quad)}{4\times5\times6}$

(5) $\frac{1}{5\times6}-\frac{1}{6\times7}=\frac{(\quad)-(\quad)}{5\times6\times7}=\frac{(\quad)}{5\times6\times7}$

16 15の逆の操作をします。（　　）にあてはまる数を書きなさい。

(1) $\frac{2}{1\times2\times3}=\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}$

(2) $\frac{2}{2\times3\times4}=\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}$

(3) $\frac{2}{3\times4\times5}=\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}$

(4) $\frac{2}{4\times5\times6}=\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}$

(5) $\frac{2}{5\times6\times7}=\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}$

17 （　　）にあてはまる数を書きなさい。16を利用します。

(1) $\frac{1}{1\times2\times3}=\left(\frac{1}{1\times2}-\frac{1}{2\times3}\right)\times\frac{1}{(\quad)}$

(2) $\frac{1}{2\times3\times4}=\left(\frac{1}{2\times3}-\frac{1}{3\times4}\right)\times\frac{1}{(\quad)}$

(3) $\frac{1}{3\times4\times5}=\left(\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}\right)\times\frac{1}{(\quad)}$

(4) $\frac{1}{4\times5\times6}=\left(\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}\right)\times\frac{1}{(\quad)}$

(5) $\frac{1}{5\times6\times7}=\left(\frac{1}{(\quad)\times(\quad)}-\frac{1}{(\quad)\times(\quad)}\right)\times\frac{1}{(\quad)}$

18 （　　）にあてはまる数を書きなさい。

$$\frac{1}{1\times2\times3}+\frac{1}{2\times3\times4}+\frac{1}{3\times4\times5}+\frac{1}{4\times5\times6}$$

$$=\left(\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\right)\times\frac{1}{(\ )}$$

$$+\left(\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\right)\times\frac{1}{(\ )}+\left(\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\right)\times\frac{1}{(\ )}$$

$$=\left(\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}+\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\right.$$

$$+\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}+\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\Bigg)\times\frac{1}{(\ )}$$

$$=\left(\frac{1}{(\ )\times(\ )}-\frac{1}{(\ )\times(\ )}\right)\times\frac{1}{(\ )}$$

$$=\frac{(\quad)}{(\quad)}$$

19 $\frac{1}{1\times2\times3}=(\frac{1}{1\times2}-\frac{1}{2\times3})\times\frac{1}{2}$ になることを利用して、次の計算をしなさい。

$$\frac{1}{1\times2\times3}+\frac{1}{2\times3\times4}+\frac{1}{3\times4\times5}+\cdots+\frac{1}{9\times10\times11}$$

■ 解答・解説 ■

1 (1) (与式)$=\frac{3-2}{2\times3}=\frac{1}{6}$

(2) (与式)$=\frac{4-3}{3\times4}=\frac{1}{12}$

(3) (与式)$=\frac{5-4}{4\times5}=\frac{1}{20}$

(4) (与式)$=\frac{6-5}{5\times6}=\frac{1}{30}$

(5) (与式)$=\frac{7-6}{6\times7}=\frac{1}{42}$

2 (1) (与式)$=\frac{3-2}{2\times3}=\frac{1}{2}-\frac{1}{3}$

(2) (与式)$=\frac{4-3}{3\times4}=\frac{1}{3}-\frac{1}{4}$

(3) (与式)$=\frac{5-4}{4\times5}=\frac{1}{4}-\frac{1}{5}$

(4) (与式)$=\frac{6-5}{5\times6}=\frac{1}{5}-\frac{1}{6}$

(5) (与式)$=\frac{7-6}{6\times7}=\frac{1}{6}-\frac{1}{7}$

3 (1) (与式)$=\frac{1}{1}-\frac{1}{2}$

(2) (与式)$=\frac{1}{2}-\frac{1}{3}$

(3) (与式)$=\frac{1}{3}-\frac{1}{4}$

(4) (与式)$=\frac{1}{4}-\frac{1}{5}$

(5) (与式)$=\frac{1}{5}-\frac{1}{6}$

4 (1) (与式)$=\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}$

$=\frac{1}{2}-\frac{1}{4}$

$=\frac{1}{4}$

(2) (与式)$=\frac{1}{3}-\frac{1}{4}+\frac{1}{4}-\frac{1}{5}$

$=\frac{1}{3}-\frac{1}{5}$

$=\frac{2}{15}$

(3) (与式)$=\frac{1}{1}-\frac{1}{2}+\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}$

$=\frac{1}{1}-\frac{1}{4}$

$=\frac{3}{4}$

(4) (与式)$=\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}+\frac{1}{4}-\frac{1}{5}$

$=\frac{1}{2}-\frac{1}{5}$

$=\frac{3}{10}$

(5) (与式)$=\frac{1}{1}-\frac{1}{2}+\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}+\frac{1}{4}-\frac{1}{5}$

$=\frac{1}{1}-\frac{1}{5}$

$=\frac{4}{5}$

(6) (与式)$=\frac{1}{1}-\frac{1}{2}+\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}+\frac{1}{4}-\frac{1}{5}+\frac{1}{5}-\frac{1}{6}$

$=\frac{1}{1}-\frac{1}{6}$

$=\frac{5}{6}$

5 (与式)$=\frac{1}{1}-\frac{1}{2}+\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}+\cdots+\frac{1}{9}-\frac{1}{10}$

$=\frac{1}{1}-\frac{1}{10}$

$=\underline{\frac{9}{10}}$

6 (与式)$=\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+\frac{1}{4\times5}+\cdots+\frac{1}{9\times10}+\frac{1}{10\times11}$

$=\frac{1}{1}-\frac{1}{2}+\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}+\frac{1}{4}-\frac{1}{5}+\cdots+\frac{1}{9}-\frac{1}{10}+\frac{1}{10}-\frac{1}{11}$

$=\frac{1}{1}-\frac{1}{11}$

$=\underline{\frac{10}{11}}$

7 (1) (与式)$=\frac{5-3}{3\times5}=\frac{2}{3\times5}$

(2) (与式)$=\frac{7-5}{5\times7}=\frac{2}{5\times7}$

(3) (与式)$=\frac{9-7}{7\times9}=\frac{2}{7\times9}$

(4) (与式)$=\frac{11-9}{9\times11}=\frac{2}{9\times11}$

(5) (与式)$=\frac{13-11}{11\times13}=\frac{2}{11\times13}$

8 (1) (与式)$=\frac{5-3}{3\times5}=\frac{1}{3}-\frac{1}{5}$

(2) (与式)$=\frac{7-5}{5\times7}=\frac{1}{5}-\frac{1}{7}$

(3) (与式)$=\frac{9-7}{7\times9}=\frac{1}{7}-\frac{1}{9}$

(4) (与式)$=\frac{11-9}{9\times11}=\frac{1}{9}-\frac{1}{11}$

(5) (与式)$=\frac{3-1}{1\times3}=\frac{1}{1}-\frac{1}{3}$

9 (1) (与式)$=\frac{1}{1}-\frac{1}{3}+\frac{1}{3}-\frac{1}{5}+\frac{1}{5}-\frac{1}{7}+\frac{1}{7}-\frac{1}{9}$

$=\frac{1}{1}-\frac{1}{9}$

$=\frac{8}{9}$

(2) (与式)$=\frac{1}{1}-\frac{1}{3}+\frac{1}{3}-\frac{1}{5}+\frac{1}{5}-\frac{1}{7}+\frac{1}{7}-\frac{1}{9}+\frac{1}{9}-\frac{1}{11}$

$=\frac{1}{1}-\frac{1}{11}$

$=\frac{10}{11}$

10 (1) $(\text{与式}) = \left(\frac{1}{3} - \frac{1}{5}\right) \times \frac{1}{2}$

(2) $(\text{与式}) = \left(\frac{1}{5} - \frac{1}{7}\right) \times \frac{1}{2}$

(3) $(\text{与式}) = \left(\frac{1}{7} - \frac{1}{9}\right) \times \frac{1}{2}$

(4) $(\text{与式}) = \left(\frac{1}{9} - \frac{1}{11}\right) \times \frac{1}{2}$

(5) $(\text{与式}) = \left(\frac{1}{1} - \frac{1}{3}\right) \times \frac{1}{2}$

11 (1) $(\text{与式}) = \left(\frac{1}{3} - \frac{1}{5}\right) \times \frac{1}{2}$

(2) $(\text{与式}) = \left(\frac{1}{5} - \frac{1}{7}\right) \times \frac{1}{2}$

(3) $(\text{与式}) = \left(\frac{1}{7} - \frac{1}{9}\right) \times \frac{1}{2}$

(4) $(\text{与式}) = \left(\frac{1}{9} - \frac{1}{11}\right) \times \frac{1}{2}$

(5) $(\text{与式}) = \left(\frac{1}{1} - \frac{1}{3}\right) \times \frac{1}{2}$

12 (1) $(\text{与式}) = \left(\frac{1}{3} - \frac{1}{5}\right) \times \frac{1}{2} + \left(\frac{1}{5} - \frac{1}{7}\right) \times \frac{1}{2}$

$= \left(\frac{1}{3} - \frac{1}{5} + \frac{1}{5} - \frac{1}{7}\right) \times \frac{1}{2}$

$= \left(\frac{1}{3} - \frac{1}{7}\right) \times \frac{1}{2}$

$= \frac{2}{21}$

(2) $(\text{与式}) = \left(\frac{1}{3} - \frac{1}{5}\right) \times \frac{1}{2} + \left(\frac{1}{5} - \frac{1}{7}\right) \times \frac{1}{2} + \left(\frac{1}{7} - \frac{1}{9}\right) \times \frac{1}{2} + \left(\frac{1}{9} - \frac{1}{11}\right) \times \frac{1}{2}$

$= \left(\frac{1}{3} - \frac{1}{5} + \frac{1}{5} - \frac{1}{7} + \frac{1}{7} - \frac{1}{9} + \frac{1}{9} - \frac{1}{11}\right) \times \frac{1}{2}$

$= \left(\frac{1}{3} - \frac{1}{11}\right) \times \frac{1}{2}$

$= \frac{4}{33}$

(3) (与式)$=(\frac{1}{1}-\frac{1}{3})\times\frac{1}{2}+(\frac{1}{3}-\frac{1}{5})\times\frac{1}{2}+(\frac{1}{5}-\frac{1}{7})\times\frac{1}{2}+(\frac{1}{7}-\frac{1}{9})\times\frac{1}{2}$

$+(\frac{1}{9}-\frac{1}{11})\times\frac{1}{2}+(\frac{1}{11}-\frac{1}{13})\times\frac{1}{2}+(\frac{1}{13}-\frac{1}{15})\times\frac{1}{2}+(\frac{1}{15}-\frac{1}{17})\times\frac{1}{2}$

$=(\frac{1}{1}-\frac{1}{3}+\frac{1}{3}-\frac{1}{5}+\frac{1}{5}-\frac{1}{7}+\frac{1}{7}-\frac{1}{9}+\frac{1}{9}-\frac{1}{11}+\frac{1}{11}-\frac{1}{13}+\frac{1}{13}-\frac{1}{15}+\frac{1}{15}-\frac{1}{17})\times\frac{1}{2}$

$=(\frac{1}{1}-\frac{1}{17})\times\frac{1}{2}$

$=\frac{8}{17}$

13 (与式)$=(\frac{1}{1}-\frac{1}{3})\times\frac{1}{2}+(\frac{1}{3}-\frac{1}{5})\times\frac{1}{2}+(\frac{1}{5}-\frac{1}{7})\times\frac{1}{2}+\cdots+(\frac{1}{17}-\frac{1}{19})\times\frac{1}{2}$

$=(\frac{1}{1}-\frac{1}{3}+\frac{1}{3}-\frac{1}{5}+\frac{1}{5}-\frac{1}{7}+\cdots+\frac{1}{17}-\frac{1}{19})\times\frac{1}{2}$

$=(\frac{1}{1}-\frac{1}{19})\times\frac{1}{2}$

$=\underline{\frac{9}{19}}$

14 (与式)$=\frac{1}{1\times3}+\frac{1}{3\times5}+\frac{1}{5\times7}+\frac{1}{7\times9}+\frac{1}{9\times11}+\frac{1}{11\times13}$

$=(\frac{1}{1}-\frac{1}{3})\times\frac{1}{2}+(\frac{1}{3}-\frac{1}{5})\times\frac{1}{2}+(\frac{1}{5}-\frac{1}{7})\times\frac{1}{2}+(\frac{1}{7}-\frac{1}{9})\times\frac{1}{2}+(\frac{1}{9}-\frac{1}{11})\times\frac{1}{2}+(\frac{1}{11}-\frac{1}{13})\times\frac{1}{2}$

$=(\frac{1}{1}-\frac{1}{3}+\frac{1}{3}-\frac{1}{5}+\frac{1}{5}-\frac{1}{7}+\frac{1}{7}-\frac{1}{9}+\frac{1}{9}-\frac{1}{11}+\frac{1}{11}-\frac{1}{13})\times\frac{1}{2}$

$=(\frac{1}{1}-\frac{1}{13})\times\frac{1}{2}$

$=\underline{\frac{6}{13}}$

15 (1) (与式)$=\frac{3-1}{1\times2\times3}=\frac{2}{1\times2\times3}$

(2) (与式)$=\frac{4-2}{2\times3\times4}=\frac{2}{2\times3\times4}$

(3) (与式)$=\frac{5-3}{3\times4\times5}=\frac{2}{3\times4\times5}$

(4) (与式)$=\frac{6-4}{4\times5\times6}=\frac{2}{4\times5\times6}$

(5) (与式)$=\frac{7-5}{5\times6\times7}=\frac{2}{5\times6\times7}$

16 (1) (与式)$=\frac{1}{1\times2}-\frac{1}{2\times3}$

(2) (与式)$=\frac{1}{2\times3}-\frac{1}{3\times4}$

(3) (与式)$=\frac{1}{3\times4}-\frac{1}{4\times5}$

(4) (与式)$=\frac{1}{4\times5}-\frac{1}{5\times6}$

(5) (与式)$=\frac{1}{5\times6}-\frac{1}{6\times7}$

17 (1) (与式)$=(\frac{1}{1\times2}-\frac{1}{2\times3})\times\frac{1}{2}$

(2) (与式)$=(\frac{1}{2\times3}-\frac{1}{3\times4})\times\frac{1}{2}$

(3) (与式)$=(\frac{1}{3\times4}-\frac{1}{4\times5})\times\frac{1}{2}$

(4) (与式)$=(\frac{1}{4\times5}-\frac{1}{5\times6})\times\frac{1}{2}$

(5) (与式)$=(\frac{1}{5\times6}-\frac{1}{6\times7})\times\frac{1}{2}$

18 (与式)$=(\frac{1}{1\times2}-\frac{1}{2\times3})\times\frac{1}{2}+(\frac{1}{2\times3}-\frac{1}{3\times4})\times\frac{1}{2}+(\frac{1}{3\times4}-\frac{1}{4\times5})\times\frac{1}{2}+(\frac{1}{4\times5}-\frac{1}{5\times6})\times\frac{1}{2}$

$=(\frac{1}{1\times2}-\frac{1}{2\times3}+\frac{1}{2\times3}-\frac{1}{3\times4}+\frac{1}{3\times4}-\frac{1}{4\times5}+\frac{1}{4\times5}-\frac{1}{5\times6})\times\frac{1}{2}$

$=(\frac{1}{1\times2}-\frac{1}{5\times6})\times\frac{1}{2}$

$=\underline{\frac{7}{30}}$

19 (与式)$=(\frac{1}{1\times2}-\frac{1}{2\times3})\times\frac{1}{2}+(\frac{1}{2\times3}-\frac{1}{3\times4})\times\frac{1}{2}+(\frac{1}{3\times4}-\frac{1}{4\times5})\times\frac{1}{2}+\cdots$

$+(\frac{1}{9\times10}-\frac{1}{10\times11})\times\frac{1}{2}$

$=(\frac{1}{1\times2}-\frac{1}{2\times3}+\frac{1}{2\times3}-\frac{1}{3\times4}+\frac{1}{3\times4}-\frac{1}{4\times5}+\cdots+\frac{1}{9\times10}-\frac{1}{10\times11})\times\frac{1}{2}$

$=(\frac{1}{1\times2}-\frac{1}{10\times11})\times\frac{1}{2}$

$=\underline{\frac{27}{110}}$