1.

$$\frac{24\left(\frac{1}{3}+\frac{1}{8}\right)}{\frac{1}{5}+\frac{1}{6}} = \frac{24.\frac{1}{3}+24.\frac{1}{8}}{\underset{(6)}{\frac{1}{5}}+\underset{(5)}{\frac{1}{6}}}$$

$$= \frac{8+3}{\frac{6+5}{30}}$$

$$= \frac{11}{\frac{11}{30}}$$

$$= 11.\frac{30}{11}$$

$$= 30$$

CEVAP: D

3.

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

$$= \frac{1-\frac{1}{4}}{\frac{3}{2}}$$

$$= \frac{\frac{3}{4}}{\frac{3}{2}} = \frac{3}{4}.\frac{2}{3}$$

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

CEVAP: A

2.

$$\frac{2,4}{0,02}+\frac{0,3}{0,01}+\frac{0,51}{0,17}$$

$$= \frac{\frac{24}{10}}{\frac{2}{100}}+\frac{\frac{3}{10}}{\frac{1}{100}}+\frac{\frac{51}{100}}{\frac{17}{100}}$$

$$= \frac{24}{10}.\frac{\overset{10}{\cancel{100}}}{2}+\frac{3}{\cancel{10}}.\frac{\overset{10}{\cancel{100}}}{1}+\frac{51}{\cancel{100}}.\frac{\cancel{100}}{17}$$

$$= \frac{240}{2}+3.10+\frac{51}{17}$$

$$= 120+30+3$$

$$= 153$$

CEVAP: B

4.

$$\frac{0,01}{0,001}+\frac{0,3}{0,03}+\frac{1,2}{0,03} = \frac{\frac{1}{100}}{\frac{1}{1000}}+\frac{\frac{3}{10}}{\frac{3}{100}}+\frac{\frac{12}{10}}{\frac{3}{10}}$$

$$= \frac{1}{\cancel{100}}.10\cancel{0}\cancel{0}+\frac{\cancel{3}}{\cancel{10}}.\frac{10\cancel{0}}{\cancel{3}}+\frac{12}{\cancel{10}}.\frac{10\cancel{0}}{3}$$

$$= 10+10+\frac{120}{3}$$

$$= 10+10+40$$

$$= 60$$

CEVAP: E

5.

$$\frac{\left(3-\dfrac{1}{3}\right)-\left(\dfrac{2}{3}-1\right)}{\left(1-\dfrac{1}{2}\right)-\left(\dfrac{1}{2}-2\right)} = \frac{3-\dfrac{1}{3}-\dfrac{2}{3}+1}{1-\dfrac{1}{2}-\dfrac{1}{2}+2}$$

$$= \frac{3+1-\dfrac{1}{3}-\dfrac{2}{3}}{1+2-\dfrac{1}{2}-\dfrac{1}{2}}$$

$$= \frac{4-\dfrac{3}{3}}{3-\dfrac{2}{2}} = \frac{4-1}{3-1}$$

$$= \frac{3}{2}$$

CEVAP: D

6.

$$\frac{21}{4}+\frac{55}{12}-\frac{55}{6}-\frac{25}{20} = \frac{21}{4}-\frac{\overset{5}{\cancel{25}}}{\underset{4}{\cancel{20}}}-\frac{55}{12}-\frac{55}{6}$$

$$= \frac{21}{4}-\frac{5}{4}+\frac{55}{12}_{(1)}-\frac{55}{6}_{(2)}$$

$$= \frac{16}{4}+\frac{55-110}{12}$$

$$= 4-\frac{55}{12}$$

$$= -\frac{7}{6}$$

CEVAP: A

7.

$$\left[\frac{5}{1-\dfrac{5}{6}}+\frac{\dfrac{5}{6}-1}{5}\right]+\frac{1}{30} = \left[\frac{5}{\dfrac{1}{6}}+\frac{\dfrac{-1}{6}}{5}\right]+\frac{1}{30}$$

$$= \left[5.6-\frac{1}{6}\cdot\frac{1}{5}\right]+\frac{1}{30}$$

$$= 30-\frac{1}{\cancel{30}}+\frac{1}{\cancel{30}}$$

$$= 30$$

CEVAP: E

8.

$$\frac{0,1+0,01+0,001}{0,05+0,005+0,0005}$$

$$= \frac{\underset{(100)}{\dfrac{1}{10}}+\underset{(10)}{\dfrac{1}{100}}+\underset{(1)}{\dfrac{1}{1000}}}{\underset{(100)}{\dfrac{5}{100}}+\underset{(10)}{\dfrac{5}{1000}}+\underset{(1)}{\dfrac{5}{10000}}}$$

$$= \frac{\dfrac{100+10+1}{1000}}{\dfrac{500+50+5}{10000}}$$

$$= \frac{\dfrac{111}{1000}}{\dfrac{555}{10000}} = \frac{111}{1\cancel{000}}\cdot\frac{10\cancel{000}}{555}$$

$$= \frac{1110}{555} = 2$$

CEVAP: D

9.

$$a = \frac{65}{36} + \frac{13}{48}$$

$$b = \frac{65}{36} - \frac{13}{48}$$

$$\frac{a+b}{a-b} = \frac{\dfrac{65}{36} + \dfrac{13}{48} + \dfrac{65}{36} - \dfrac{13}{48}}{\dfrac{65}{36} + \dfrac{13}{48} - \left(\dfrac{65}{36} - \dfrac{13}{48}\right)}$$

$$= \frac{\dfrac{65}{36} + \dfrac{65}{36}}{\dfrac{65}{36} + \dfrac{13}{48} - \dfrac{65}{36} + \dfrac{13}{48}}$$

$$= \frac{\dfrac{130}{36}}{\dfrac{13}{48} + \dfrac{13}{48}}$$

$$= \frac{\overset{5}{\cancel{130}}}{\underset{3}{\cancel{36}}} \cdot \frac{\overset{4}{\cancel{48}}}{\underset{1}{\cancel{26}}} = \frac{20}{3}$$

CEVAP: E

10.

$$\frac{\dfrac{18}{17} - \dfrac{12}{5}}{\dfrac{24}{17} - \dfrac{16}{5}} = \frac{6\left(\dfrac{3}{17} - \dfrac{2}{5}\right)}{8\left(\dfrac{23}{17} - \dfrac{2}{5}\right)}$$

$$= \frac{6}{8} = \frac{3}{4}$$

CEVAP: C

11.

$$\frac{0{,}09}{0{,}003} + \frac{0{,}1}{0{,}01} - \frac{0{,}12}{0{,}04}$$

$$= \frac{\dfrac{9}{100}}{\dfrac{3}{1000}} + \frac{\dfrac{1}{10}}{\dfrac{1}{100}} - \frac{\dfrac{12}{100}}{\dfrac{4}{100}}$$

$$= \frac{9}{\cancel{100}} \cdot \frac{\cancel{1000}}{3} + \frac{1}{\cancel{10}} \cdot \cancel{100} - \frac{12}{\cancel{100}} \cdot \frac{\cancel{100}}{4}$$

$$= \frac{90}{3} + 10 - \frac{12}{4}$$

$$= 30 + 10 - 3$$

$$= 37$$

CEVAP: D

12.

$$\left(1-\frac{1}{3}\right)\cdot\left(1-\frac{1}{4}\right)\left(1-\frac{1}{5}\right)\cdots\cdots\left(1-\frac{1}{12}\right)$$

$$= \frac{2}{\cancel{3}} \cdot \frac{\cancel{3}}{\cancel{4}} \cdot \frac{\cancel{4}}{\cancel{5}} \cdots\cdots \frac{\cancel{11}}{12} = \frac{2}{12} = \frac{1}{6}$$

CEVAP: A

13.

$$\frac{4\dfrac{3}{2} - 3\dfrac{1}{2}}{1\dfrac{1}{3} + 2\dfrac{2}{3}} = \frac{4 + \dfrac{3}{2} - \left(3 + \dfrac{1}{2}\right)}{1 + \dfrac{1}{3} + 2 + \dfrac{2}{3}}$$

$$= \frac{4 + \dfrac{3}{2} - 3 - \dfrac{1}{2}}{1 + 2 + \dfrac{1}{3} + \dfrac{2}{3}}$$

$$= \frac{1 + \dfrac{2}{2}}{3 + \dfrac{3}{3}} = \frac{2}{4} = \frac{1}{2}$$

CEVAP: B

14.

$$\frac{5}{4} - \frac{1 - \dfrac{1}{3}}{1 + \dfrac{5}{3}} = \frac{5}{4} - \frac{\dfrac{2}{3}}{\dfrac{8}{3}}$$

$$= \frac{5}{4} - \frac{2}{\cancel{3}} \cdot \frac{\cancel{3}}{8}$$

$$= \frac{5}{4} - \frac{2}{8}$$

$$= \frac{5}{4} - \frac{1}{4}$$

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

CEVAP: C

15.

$$\frac{\left(\dfrac{1}{3}+\dfrac{1}{4}\right)-\left(\dfrac{1}{3}-\dfrac{1}{4}\right)}{\left(\dfrac{1}{3}+\dfrac{1}{4}\right)+\left(\dfrac{1}{3}-\dfrac{1}{4}\right)}=\frac{\dfrac{1}{\cancel{3}}+\dfrac{1}{4}-\dfrac{1}{\cancel{3}}+\dfrac{1}{4}}{\dfrac{1}{3}+\dfrac{1}{\cancel{4}}+\dfrac{1}{3}-\dfrac{1}{\cancel{4}}}$$

$$=\frac{\dfrac{2}{4}}{\dfrac{2}{3}}=\frac{\cancel{2}}{4}\cdot\frac{3}{\cancel{2}}$$

$$=\frac{3}{4}$$

CEVAP: C

16.

$$x=\frac{41}{19}-\frac{19}{23}$$

$$\underline{y=\frac{3}{19}+\frac{27}{23}}$$

$$x-y=\frac{41}{19}-\frac{19}{23}-\left(\frac{3}{19}+\frac{27}{23}\right)$$

$$x-y=\frac{41}{19}-\frac{19}{23}-\frac{3}{19}-\frac{27}{23}$$

$$x-y=\frac{41}{19}-\frac{3}{19}-\frac{19}{23}-\frac{27}{23}$$

$$x-y=\frac{38}{19}-\frac{46}{23}$$

$$x-y=2-2$$

$$x-y=0$$

$$x=y$$

CEVAP: A

17.

$$\frac{8}{3-\dfrac{2}{1+\dfrac{3}{x}}}=4 \Rightarrow 3-\frac{2}{1+\dfrac{3}{x}}=2 \Rightarrow \frac{2}{1+\dfrac{3}{x}}=1$$

$$\Rightarrow 1+\frac{3}{x}=2 \Rightarrow \frac{3}{x}=1 \Rightarrow x=3$$

CEVAP: D

18.

$$A=\left(1-\frac{1}{2}\right)\left(1-\frac{1}{4}\right)\cdot\left(1-\frac{1}{6}\right)\cdots\cdots\left(1-\frac{1}{16}\right)$$

$$A=\frac{1}{2}\cdot\frac{3}{4}\cdot\frac{5}{6}\cdots\cdots\frac{15}{16}$$

$$B=\left(1-\frac{1}{3}\right)\left(1-\frac{1}{5}\right)\left(1-\frac{1}{7}\right)\cdots\cdots\left(1-\frac{1}{17}\right)$$

$$B=\frac{2}{3}\cdot\frac{4}{5}\cdot\frac{6}{7}\cdots\cdots\frac{16}{17}$$

$$A.B\frac{1}{2}\cdot\frac{3}{4}\cdot\frac{5}{6}\cdots\cdots\frac{15}{16}\cdot\frac{2}{3}\cdot\frac{4}{5}\cdot\frac{6}{7}\cdots\cdots\frac{16}{17}$$

$$A.B=\frac{1.\cancel{2}.\cancel{3}.\cancel{4}\cdots\cdots\cancel{15}.\cancel{16}}{\cancel{2}.\cancel{3}.\cancel{4}.\cancel{5}\cdots\cdots\cancel{16}.17}$$

$$A.B=\frac{1}{17}$$

CEVAP: A

19.

$$x=\frac{2y-1}{y-1}$$

$$xy-x=2y-1$$

$$xy-2y=x-1$$

$$y(x-2)=x-1$$

$$y=\frac{x-1}{x-2}$$

CEVAP: C

20.

$$x+y=\frac{1}{8}\ ,\ \ y+z=\frac{1}{12}\ ,\ \ x+z=\frac{1}{24}$$

$$\frac{1}{24}<\frac{1}{12}<\frac{1}{8}$$

$$x+z<y+z<x+y$$

$$x+z<y+z\ \ \text{ve}\ \ y+z<x+y$$

$$x<y\qquad\qquad z<x$$

$$z<x<y$$

CEVAP: B