C.1

(a) $\dfrac{3}{4}\times\dfrac{2}{5}=\dfrac{3\times2}{4\times5}=\dfrac{3}{10}$

(b) $\dfrac{15}{49}\times\dfrac{21}{25}=\dfrac{\cancel{15}^{\,3}}{\cancel{49}_{\,7}}\times\dfrac{\cancel{21}^{\,3}}{\cancel{25}_{\,5}}=\dfrac{3}{7}\times\dfrac{3}{5}=\dfrac{9}{35}$

(c) $\dfrac{36}{64}\times\dfrac{24}{30}=\dfrac{\cancel{36}^{\,6}}{\cancel{64}_{\,8}}\times\dfrac{\cancel{24}^{\,3}}{\cancel{30}_{\,5}}=\dfrac{6}{8}\times\dfrac{3}{5}=\dfrac{\cancel{6}^{\,3}}{\cancel{8}_{\,4}}\times\dfrac{3}{5}=\dfrac{3}{4}\times\dfrac{3}{5}=\dfrac{9}{20}$

(d) $\dfrac{55}{32}\times\dfrac{24}{33}=\dfrac{\cancel{55}^{\,5}}{\cancel{32}_{\,4}}\times\dfrac{\cancel{24}^{\,3}}{\cancel{33}_{\,3}}=\dfrac{5}{4}\times\dfrac{3}{3}=\dfrac{5}{4}\times1=\dfrac{5}{4}$

C.2

(a) $\left(\dfrac{1}{2}-\dfrac{1}{3}\right)\times\dfrac{5}{6}=\left(\dfrac{3}{6}-\dfrac{2}{6}\right)\times\dfrac{5}{6}=\dfrac{1}{6}\times\dfrac{5}{6}=\dfrac{5}{36}$

(b) $\left(\dfrac{7}{3}-5\right)\times\dfrac{2}{5}=\left(\dfrac{7}{3}-\dfrac{15}{3}\right)\times\dfrac{2}{5}=\dfrac{7-15}{3}\times\dfrac{2}{5}=\dfrac{-8}{3}\times\dfrac{2}{5}$
$=-\dfrac{8\times2}{3\times5}=-\dfrac{16}{15}$

C.3

(a) $\left(\dfrac{2}{3}+\dfrac{5}{6}\right)\left(\dfrac{1}{3}-\dfrac{5}{2}\right)=\left(\dfrac{4}{6}+\dfrac{5}{6}\right)\left(\dfrac{2}{6}-\dfrac{15}{6}\right)=\dfrac{9}{6}\times\left(-\dfrac{13}{6}\right)$
$=-\dfrac{3}{2}\times\dfrac{13}{6}=-\dfrac{1}{2}\times\dfrac{13}{2}=-\dfrac{13}{4}$

(b) $\left(\dfrac{2}{15}-\dfrac{1}{3}\right)\times\left(\dfrac{5}{2}+\dfrac{5}{4}\right)=\left(\dfrac{2}{15}-\dfrac{5}{15}\right)\times\left(\dfrac{10}{4}+\dfrac{5}{4}\right)$
$=\dfrac{2-5}{15}\times\dfrac{10+5}{4}=\dfrac{-3}{15}\times\dfrac{15}{4}=\dfrac{-3}{1}\times\dfrac{1}{4}=-\dfrac{3}{4}$

C.4

(a) $\dfrac{7}{3}\times\dfrac{5}{4}+\dfrac{1}{6}=\dfrac{7\times5}{3\times4}+\dfrac{1}{6}=\dfrac{35}{12}+\dfrac{1}{6}=\dfrac{35}{12}+\dfrac{2}{12}=$
$\dfrac{35+2}{12}=\dfrac{37}{12}$

(b) $\dfrac{9}{28}\times\dfrac{7}{5}+\dfrac{10}{3}\times\dfrac{6}{25}=\dfrac{9}{\cancel{28}_{\,4}}\times\dfrac{\cancel{7}^{\,1}}{5}+\dfrac{\cancel{10}^{\,2}}{\cancel{3}_{\,1}}\times\dfrac{\cancel{6}^{\,2}}{\cancel{25}_{\,5}}$
$=\dfrac{9}{4}\times\dfrac{1}{5}+\dfrac{2}{1}\times\dfrac{2}{5}=\dfrac{9}{20}+\dfrac{4}{5}=\dfrac{9}{20}+\dfrac{16}{20}=\dfrac{25}{20}=\dfrac{5}{4}$

C.5

(a) $\dfrac{\dfrac{3}{2}-\dfrac{10}{6}}{\dfrac{2}{7}+\dfrac{1}{3}}=\dfrac{\dfrac{9}{6}-\dfrac{10}{6}}{\dfrac{6}{21}+\dfrac{7}{21}}=\dfrac{-\dfrac{1}{6}}{\dfrac{13}{21}}=-\dfrac{1}{6}\times\dfrac{21}{13}=-\dfrac{7}{26}$

(b) $\dfrac{2}{13}-\dfrac{5}{13}\div\dfrac{10}{16}=\dfrac{2}{13}-\dfrac{5}{13}\times\dfrac{16}{10}=\dfrac{2}{13}-\dfrac{1}{13}\times\dfrac{16}{2}$
$=\dfrac{2}{13}-\dfrac{1}{13}\times8=\dfrac{2}{13}-\dfrac{8}{13}=-\dfrac{6}{13}$