

حلول تمارين درس الكسور والعمليات عليها -5-

(2) الكسور:

2.7 ضرب عدد في كسر:

حل التمرين 1:

$\frac{3}{7} \times 14 = 3 \times \frac{14}{7} = 3 \times 2 = 6$	$\frac{45}{50} \times 5 = \frac{9 \times \cancel{5}}{10 \times \cancel{5}} \times 5 = \frac{9 \times 5}{10} = \frac{9 \times \cancel{5}}{2 \times \cancel{5}} = \frac{9}{2}$
$\frac{15}{8} \times 11 = \frac{15 \times 11}{8} = \frac{165}{8}$	$\frac{12}{40} \times 7 = \frac{3 \times \cancel{4}}{10 \times \cancel{4}} \times 7 = \frac{3 \times 7}{10} = \frac{21}{10}$
$\frac{11}{9} \times 3 = \frac{11 \times 3}{9} = \frac{11 \times \cancel{3}}{3 \times \cancel{3}} = \frac{11}{3}$	$\frac{12}{27} \times 9 = \frac{4 \times \cancel{3}}{9 \times \cancel{3}} \times 9 = \frac{4 \times \cancel{9}}{\cancel{9}} = 4$
$\frac{24}{21} \times 10 = \frac{8 \times \cancel{3}}{7 \times \cancel{3}} \times 10 = \frac{8 \times 10}{7} = \frac{80}{7}$	$\frac{44}{36} \times 6 = \frac{11 \times \cancel{4}}{9 \times \cancel{4}} \times 6 = \frac{11 \times 6}{9} = \frac{11 \times 2 \times \cancel{3}}{3 \times \cancel{3}} = \frac{22}{3}$

حل التمرين 2:

$12 \times \frac{4}{3} = \frac{12}{3} \times 4 = 4 \times 4 = 16$	$255 \times \frac{7}{51} = \frac{255}{51} \times 7 = 5 \times 7 = 35$
$60 \times \frac{9}{8} = \frac{60}{8} \times 9 = \frac{15 \times \cancel{4}}{2 \times \cancel{4}} \times 9 = \frac{15 \times 9}{2} = \frac{135}{2}$	$32 \times \frac{1}{4} = \frac{32}{4} \times 1 = 8 \times 1 = 8$
$63 \times \frac{2}{7} = \frac{63}{7} \times 2 = 9 \times 2 = 18$	$55 \times \frac{3}{8} = \frac{55 \times 3}{8} = \frac{165}{8}$
$14 \times \frac{7}{2} = \frac{14}{2} \times 7 = 7 \times 7 = 49$	$45 \times \frac{3}{5} = \frac{45}{5} \times 3 = 9 \times 3 = 27$

2.8 العمليات على الكسور:

حل التمرين 1:

$\frac{13}{2} - \frac{4}{2} \times \frac{7}{3} = \frac{13}{2} - \frac{28}{6} = \frac{13 \times 3}{2 \times 3} - \frac{28}{6} = \frac{39}{6} - \frac{28}{6} = \frac{11}{6}$
$\frac{15}{3} + \frac{4}{3} \times \frac{7}{3} = \frac{15}{3} + \frac{4 \times 7}{3 \times 3} = \frac{15}{3} + \frac{21}{9} = \frac{15 \times 3}{3 \times 3} + \frac{21}{9} = \frac{45}{9} + \frac{21}{9} = \frac{73}{9}$
$\frac{13}{4} \times \frac{7}{5} + \frac{4}{5} = \frac{13 \times 7}{4 \times 5} + \frac{4}{5} = \frac{91}{20} + \frac{4}{5} = \frac{91}{20} + \frac{4 \times 4}{5 \times 4} = \frac{91}{20} + \frac{16}{20} = \frac{107}{20}$
$\frac{1}{2} \times \frac{3}{8} + \frac{7}{32} = \frac{1 \times 3}{2 \times 8} + \frac{7}{32} = \frac{3}{16} + \frac{7}{32} = \frac{3 \times 2}{16 \times 2} + \frac{7}{32} = \frac{6}{32} + \frac{7}{32} = \frac{13}{32}$
$\frac{7}{16} + \frac{7}{2} \times \frac{3}{4} = \frac{7}{16} + \frac{7 \times 3}{2 \times 4} = \frac{7}{16} + \frac{21}{8} = \frac{7}{16} + \frac{21 \times 2}{8 \times 2} = \frac{7}{16} + \frac{42}{16} = \frac{49}{16}$

حل التمرين 2:

$$\frac{11}{4} \times \frac{5}{9} - 1 = \frac{11 \times 5}{4 \times 9} - 1 = \frac{55}{36} - \frac{36}{36} = \frac{19}{36}$$

$$\frac{15-2}{3 \times 7} \times \frac{15}{7} = \frac{13}{3 \times 7} \times \frac{15}{7} = \frac{13 \times \cancel{7} \times 5}{\cancel{7} \times 7 \times 7} = \frac{13 \times 5}{7 \times 7} = \frac{65}{49}$$

$$\left(\frac{8}{11} \times \frac{7}{4} + 6 \right) \frac{5}{8} = \left(\frac{2 \times \cancel{4} \times 7}{11 \times \cancel{4}} + 6 \right) \frac{5}{8} = \left(\frac{14}{11} + \frac{66}{11} \right) \frac{5}{8} = \frac{80}{11} \times \frac{5}{8} = \frac{10 \times \cancel{8} \times 5}{11 \times \cancel{8}} = \frac{50}{11}$$

$$\left(\frac{19}{3} - \frac{8}{9} \right) \frac{11}{6} = \left(\frac{19 \times 3}{3 \times 3} - \frac{8}{9} \right) \frac{11}{6} = \left(\frac{57}{9} - \frac{8}{9} \right) \frac{11}{6} = \frac{49}{9} \times \frac{11}{6} = \frac{539}{54}$$

حل التمرين 3:

$$\left(\frac{5}{3} - \frac{1}{3} \right) \frac{2}{3} = \frac{4}{3} \times \frac{2}{3} = \frac{4 \times 2}{3 \times 3} = \frac{8}{9} \quad \left(\frac{8}{3} - 1 \right) \frac{2}{7} = \left(\frac{8}{3} - \frac{3}{3} \right) \frac{2}{7} = \frac{5}{3} \times \frac{2}{7} = \frac{5 \times 2}{3 \times 7} = \frac{10}{21}$$

$$\frac{2}{7} \left(\frac{10}{3} - 3 \right) = \frac{2}{7} \left(\frac{10}{3} - \frac{9}{3} \right) = \frac{2}{7} \times \frac{1}{3} = \frac{2 \times 1}{7 \times 3} = \frac{2}{21}$$

$$\left(\frac{4}{3} - 1 \right) \left(\frac{3}{8} + 1 \right) = \left(\frac{4}{3} - \frac{3}{3} \right) \left(\frac{3}{8} + \frac{8}{8} \right) = \frac{1}{3} \times \frac{11}{8} = \frac{1 \times 11}{3 \times 8} = \frac{11}{24}$$

$$\left(\frac{10}{3} - 1 \right) \left(\frac{4}{3} - 1 \right) \left(\frac{3}{8} + 1 \right) = \left(\frac{10}{3} - \frac{3}{3} \right) \left(\frac{4}{3} - \frac{3}{3} \right) \left(\frac{3}{8} + \frac{8}{8} \right) = \frac{7}{3} \times \frac{1}{3} \times \frac{11}{8} = \frac{77}{72}$$

$$\frac{2+3 \times 6}{9+3 \times 7} = \frac{2+18}{9+21} = \frac{20}{30} = \frac{2 \times \cancel{10}}{3 \times \cancel{10}} = \frac{2}{3}$$

حل التمرين 4:

$$\frac{100-5 \times 4}{50-3 \times 6} = \frac{100-20}{50-18} = \frac{80}{32} = \frac{5 \times \cancel{16}}{2 \times \cancel{16}} = \frac{5}{2}$$

$$\frac{5(10-7)+1}{6(13-10)-2} = \frac{5 \times 3 + 1}{6 \times 3 - 2} = \frac{15+1}{18-2} = \frac{16}{16} = 1$$

$$\frac{2+8}{2+10} = \frac{10}{12} = \frac{5 \times \cancel{2}}{6 \times \cancel{2}} = \frac{5}{6}$$

$$3 \times \frac{7}{21} + \frac{5}{3} - \frac{2}{7} = \frac{3 \times 7}{21} + \frac{5 \times 7}{3 \times 7} - \frac{2 \times 3}{7 \times 3} = \frac{21+35-6}{21} = \frac{50}{21}$$

$$6 \times \frac{2+7 \times 3}{20-4 \times 2} = 6 \times \frac{2+21}{20-8} = 6 \times \frac{23}{12} = \frac{6}{12} \times 23 = \frac{1 \times \cancel{6}}{2 \times \cancel{6}} \times 23 = \frac{23}{2}$$

$$20 \times \frac{4+8 \times 3}{10-3 \times 2} = 20 \times \frac{4+24}{10-6} = 20 \times \frac{28}{4} = \frac{20}{4} \times 28 = 5 \times 28 = 140$$

حل التمرين 5:

$$\frac{2}{3}\left(\frac{8}{3}-1\right)=\frac{2}{3}\left(\frac{8}{3}-\frac{3}{3}\right)=\frac{2}{3}\left(\frac{8-3}{3}\right)=\frac{2}{3}\times\frac{5}{3}=\frac{10}{9}$$

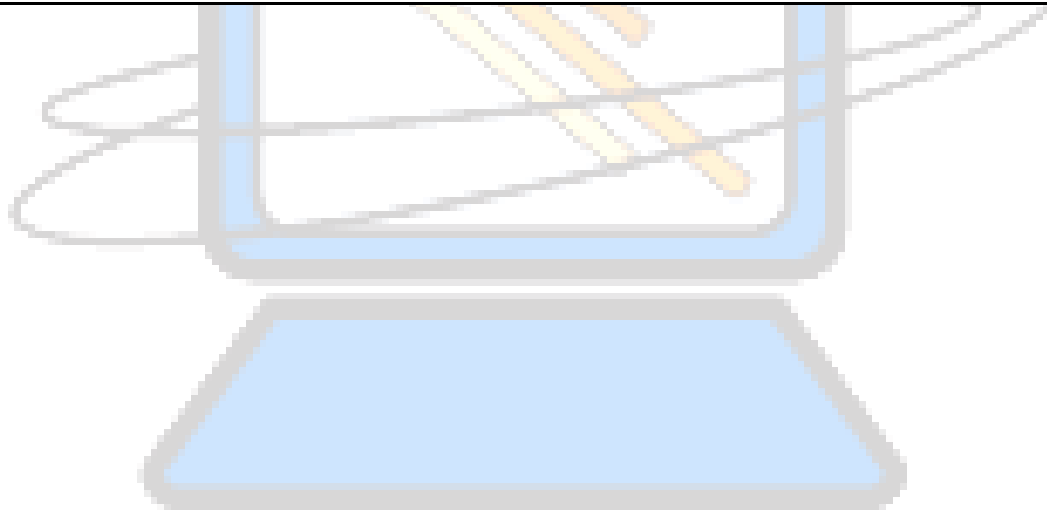
$$\frac{5}{9}\left(\frac{3}{5}+\frac{2}{15}\right)=\frac{5}{9}\left(\frac{3\times 3}{5\times 3}+\frac{2}{15}\right)=\frac{5}{9}\left(\frac{9+2}{15}\right)=\frac{5}{9}\times\frac{11}{15}=\frac{\cancel{5}\times 11}{9\times 3\times \cancel{3}}=\frac{11}{27}$$

$$\frac{2}{5}+\frac{3}{5}\times\frac{15}{9}=\frac{2}{5}+\frac{3\times 15}{5\times 9}=\frac{2}{5}+\frac{3\times \cancel{3}\times \cancel{3}}{\cancel{3}\times 3\times \cancel{3}}=\frac{2}{5}+\frac{3}{3}=\frac{2}{5}+1=\frac{2}{5}+\frac{5}{5}=\frac{2+5}{5}=\frac{7}{5}$$

$$\frac{3}{7}\times\frac{14}{9}+1=\frac{3\times 14}{7\times 9}+1=\frac{\cancel{3}\times 2\times \cancel{7}}{\cancel{7}\times 3\times \cancel{3}}+1=\frac{2}{3}+1=\frac{2}{3}+\frac{3}{3}=\frac{2+3}{3}=\frac{5}{3}$$

$$\left(\frac{8}{5}+\frac{9}{10}\right)\left(\frac{3}{4}-\frac{7}{20}\right)=\left(\frac{8\times 2}{5\times 2}+\frac{9}{10}\right)\left(\frac{3\times 5}{4\times 5}-\frac{7}{20}\right)=\left(\frac{16+9}{10}\right)\left(\frac{15-7}{20}\right)$$

$$=\frac{25}{10}\times\frac{8}{20}=\frac{25\times 8}{10\times 20}=\frac{\cancel{5}\times \cancel{5}\times \cancel{2}\times \cancel{4}}{\cancel{2}\times \cancel{5}\times \cancel{4}\times \cancel{5}}=1$$



Latreche MIFA