

第4讲 带符号的分数

例题练习题答案

例1

$$\text{计算: } \left(2\frac{2}{5} + 1\frac{1}{3} \times 5\right) \div 3\frac{2}{5} - 1\frac{1}{3}.$$

$$\text{【答案】 } 1\frac{1}{3}$$

$$\begin{aligned}\text{【解析】 } & \left(2\frac{2}{5} + 1\frac{1}{3} \times 5\right) \div 3\frac{2}{5} - 1\frac{1}{3} \\ &= \left(\frac{12}{5} + \frac{20}{3}\right) \times \frac{5}{17} - \frac{4}{3} \\ &= \frac{136}{15} \times \frac{5}{17} - \frac{4}{3} \\ &= \frac{8}{3} - \frac{4}{3} \\ &= 1\frac{1}{3}.\end{aligned}$$

练1

$$\text{计算: } \left(\frac{2}{3} + 1\frac{1}{2} \times 5\right) \div 1\frac{2}{3} - 1\frac{1}{2}.$$

$$\text{【答案】 } 3\frac{2}{5}$$

$$\begin{aligned}\text{【解析】 } & \left(\frac{2}{3} + 1\frac{1}{2} \times 5\right) \div 1\frac{2}{3} - 1\frac{1}{2} \\ &= \left(\frac{2}{3} + \frac{15}{2}\right) \times \frac{3}{5} - \frac{3}{2} \\ &= \frac{2}{3} \times \frac{3}{5} + \frac{15}{2} \times \frac{3}{5} - \frac{3}{2} \\ &= \frac{2}{5} + \frac{9}{2} - \frac{3}{2} \\ &= 3\frac{2}{5}.\end{aligned}$$

例2

$$\text{计算: } \left(\frac{1}{4} - \frac{1}{5} \div 4\right) \times \frac{5}{13} + 1 \div 1\frac{1}{12}.$$

$$\text{【答案】 } 1$$

$$\text{【解析】 } \left(\frac{1}{4} - \frac{1}{5} \div 4\right) \times \frac{5}{13} + 1 \div 1\frac{1}{12}$$

$$\begin{aligned}
&= \left(\frac{1}{4} - \frac{1}{5} \times \frac{1}{4} \right) \times \frac{5}{13} + 1 \times \frac{12}{13} \\
&= \left(\frac{5}{20} - \frac{1}{20} \right) \times \frac{5}{13} + \frac{12}{13} \\
&= \frac{1}{5} \times \frac{5}{13} + \frac{12}{13} \\
&= \frac{1}{13} + \frac{12}{13} \\
&= 1.
\end{aligned}$$

练2

计算: $\left(\frac{1}{6} - \frac{1}{7} \div 6 \right) \times \frac{7}{17} + 1 \div 1\frac{1}{16}$.

【答案】 1

【解析】

$$\begin{aligned}
&\left(\frac{1}{6} - \frac{1}{7} \div 6 \right) \times \frac{7}{17} + 1 \div 1\frac{1}{16} \\
&= \left(\frac{1}{6} - \frac{1}{7} \times \frac{1}{6} \right) \times \frac{7}{17} + 1 \times \frac{16}{17} \\
&= \left(\frac{7}{42} - \frac{1}{42} \right) \times \frac{7}{17} + \frac{16}{17} \\
&= \frac{1}{7} \times \frac{7}{17} + \frac{16}{17} \\
&= \frac{1}{17} + \frac{16}{17} \\
&= 1.
\end{aligned}$$

例3

计算: $\left(2\frac{5}{12} + 3\frac{4}{7} + 1\frac{7}{12} - 2\frac{4}{7} \right) \div \left(1 - \frac{7}{12} \right)$.

【答案】 12

【解析】

$$\begin{aligned}
&\left(2\frac{5}{12} + 3\frac{4}{7} + 1\frac{7}{12} - 2\frac{4}{7} \right) \div \left(1 - \frac{7}{12} \right) \\
&= \left[\left(2\frac{5}{12} + 1\frac{7}{12} \right) + \left(3\frac{4}{7} - 2\frac{4}{7} \right) \right] \div \left(1 - \frac{7}{12} \right) \\
&= [4 + 1] \div \left(1 - \frac{7}{12} \right) \\
&= 5 \div \frac{5}{12} \\
&= 12.
\end{aligned}$$

练3

计算: $\left(4\frac{7}{13} + 2\frac{5}{8} + 1\frac{6}{13} + 3\frac{3}{8} \right) \times \left(2 - \frac{5}{6} \right)$.

【答案】 14

【解析】

$$\left(4\frac{7}{13} + 2\frac{5}{8} + 1\frac{6}{13} + 3\frac{3}{8} \right) \times \left(2 - \frac{5}{6} \right)$$

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

例4

计算: $\frac{1}{18} \times 3\frac{1}{5} + 3.2 \times \frac{5}{18} + \frac{1}{2} \div \frac{5}{16}$.

【答案】 $\frac{8}{3}$

【解析】

$$\begin{aligned}
&\frac{1}{18} \times 3\frac{1}{5} + 3.2 \times \frac{5}{18} + \frac{1}{2} \div \frac{5}{16} \\
&= \frac{1}{18} \times 3\frac{1}{5} + 3\frac{1}{5} \times \frac{5}{18} + \frac{1}{2} \times 3\frac{1}{5} \\
&= 3\frac{1}{5} \times \left(\frac{1}{18} + \frac{5}{18} + \frac{1}{2} \right) \\
&= \frac{16}{5} \times \frac{5}{6} \\
&= \frac{8}{3}.
\end{aligned}$$

练4

计算: $\frac{11}{15} \times 2\frac{1}{4} - \frac{7}{15} \div \frac{4}{9} + \frac{1}{15} \times 2.25$.

【答案】 $\frac{3}{4}$

【解析】

$$\begin{aligned}
&\frac{11}{15} \times 2\frac{1}{4} - \frac{7}{15} \div \frac{4}{9} + \frac{1}{15} \times 2.25 \\
&= \frac{11}{15} \times \frac{9}{4} - \frac{7}{15} \times \frac{9}{4} + \frac{1}{15} \times \frac{9}{4} \\
&= \frac{9}{4} \times \left(\frac{11}{15} - \frac{7}{15} + \frac{1}{15} \right) \\
&= \frac{9}{4} \times \frac{1}{3} \\
&= \frac{3}{4}.
\end{aligned}$$

挑战极

计算:

限1

$$\begin{aligned}
&\left(3 + \frac{11}{36} \times 1 \right) + \left(5 + \frac{11}{36} \times 3 \right) + \left(7 + \frac{11}{36} \times 5 \right) + \left(9 + \frac{11}{36} \times 7 \right) \\
&+ \left(11 + \frac{11}{36} \times 9 \right) + \left(13 + \frac{11}{36} \times 11 \right).
\end{aligned}$$

【答案】 59

【解析】 $\left(3 + \frac{11}{36} \times 1\right) + \left(5 + \frac{11}{36} \times 3\right) + \left(7 + \frac{11}{36} \times 5\right) + \left(9 + \frac{11}{36} \times 7\right)$
 $+ \left(11 + \frac{11}{36} \times 9\right) + \left(13 + \frac{11}{36} \times 11\right)$
 $= 3 + \frac{11}{36} \times 1 + 5 + \frac{11}{36} \times 3 + 7 + \frac{11}{36} \times 5 + 9 + \frac{11}{36} \times 7 + 11 + \frac{11}{36} \times 9$
 $+ 13 + \frac{11}{36} \times 11$
 $= (3 + 5 + 7 + 9 + 11 + 13) + \frac{11}{36} \times (1 + 3 + 5 + 7 + 9 + 11)$
 $= 48 + \frac{11}{36} \times 36$
 $= 59.$

第4讲 带符号的分数

日积月累答案

1 计算: $\frac{1}{4} \times \frac{4}{7} - \frac{2}{3} \div \frac{14}{3} = \underline{\hspace{2cm}}.$

【答案】0

【解析】原式 $= \frac{1}{7} - \frac{2}{3} \times \frac{3}{14} = \frac{1}{7} - \frac{1}{7} = 0.$

2 计算: $\frac{4}{5} \times \frac{15}{2} - \frac{2}{7} \div \frac{2}{21} = \underline{\hspace{2cm}}.$

【答案】3

【解析】原式 $= 6 - \frac{2}{7} \times \frac{21}{2} = 6 - 3 = 3.$

3 计算: $\left(3\frac{1}{4} + 6\frac{2}{3} + 1\frac{3}{4} + 8\frac{1}{3}\right) \times \left(2 - \frac{7}{20}\right) = \underline{\hspace{2cm}}.$

【答案】33

【解析】 $\left(3\frac{1}{4} + 6\frac{2}{3} + 1\frac{3}{4} + 8\frac{1}{3}\right) \times \left(2 - \frac{7}{20}\right)$

$$\begin{aligned}
&= \left[\left(3\frac{1}{4} + 1\frac{3}{4} \right) + \left(6\frac{2}{3} + 8\frac{1}{3} \right) \right] \times \left(\frac{40}{20} - \frac{7}{20} \right) \\
&= [5 + 15] \times \frac{33}{20} \\
&= 20 \times \frac{33}{20} \\
&= 33.
\end{aligned}$$

4 计算: $\left(8\frac{1}{5} + 5\frac{2}{7} + 2\frac{4}{5} + 5\frac{5}{7} \right) \times \left(2 - \frac{5}{11} \right) = \underline{\hspace{2cm}}.$

【答案】 34

【解析】 $\left(8\frac{1}{5} + 5\frac{2}{7} + 2\frac{4}{5} + 5\frac{5}{7} \right) \times \left(2 - \frac{5}{11} \right)$

$$\begin{aligned}
&= \left[\left(8\frac{1}{5} + 2\frac{4}{5} \right) + \left(5\frac{2}{7} + 5\frac{5}{7} \right) \right] \times \frac{17}{11} \\
&= [11 + 11] \times \frac{17}{11} \\
&= 22 \times \frac{17}{11} \\
&= 34.
\end{aligned}$$

5 计算: $\frac{9}{20} \div \left[\left(\frac{7}{4} + \frac{1}{5} \right) \times \frac{1}{13} \right] = \underline{\hspace{2cm}}.$

【答案】 3

【解析】 原式 = $\frac{9}{20} \div \left[\frac{39}{20} \times \frac{1}{13} \right] = \frac{9}{20} \div \frac{3}{20} = 3.$

6 计算: $\frac{8}{15} \div \left[\left(\frac{3}{5} + \frac{1}{6} \right) \times \frac{4}{23} \right] = \underline{\hspace{2cm}}.$

【答案】 4

【解析】 原式 = $\frac{8}{15} \div \left[\frac{23}{30} \times \frac{4}{23} \right] = \frac{8}{15} \div \frac{2}{15} = \frac{8}{15} \times \frac{15}{2} = 4.$

7 计算: $\left(\frac{1}{7} - \frac{1}{8} \div 7 \right) \times \frac{8}{19} + 1 \div 1\frac{1}{18} = \underline{\hspace{2cm}}.$

【答案】 1

【解析】 原式 = $\left(\frac{1}{7} - \frac{1}{8} \times \frac{1}{7} \right) \times \frac{8}{19} + \frac{18}{19}$

$$\begin{aligned}
&= \left(\frac{8}{56} - \frac{1}{56} \right) \times \frac{8}{19} + \frac{18}{19} \\
&= \frac{1}{8} \times \frac{8}{19} + \frac{18}{19} \\
&= \frac{1}{19} + \frac{18}{19} \\
&= 1.
\end{aligned}$$

$$=1.$$

8

计算: $\frac{1}{6} \times 35 + \frac{5}{6} \times 17 = \underline{\hspace{2cm}}.$

【答案】 20

【解析】 原式 $= \frac{35}{6} + \frac{85}{6}$
 $= \frac{120}{6}$
 $= 20.$

9

计算: $\frac{4}{9} \times 10 + 15 \div 2\frac{1}{4} - 7 \div 2.25 = \underline{\hspace{2cm}}.$

【答案】 8

【解析】 $\frac{4}{9} \times 10 + 15 \div 2\frac{1}{4} - 7 \div 2.25$
 $= \frac{4}{9} \times 10 + 15 \times \frac{4}{9} - 7 \times \frac{4}{9}$
 $= \frac{4}{9} \times (10 + 15 - 7)$
 $= \frac{4}{9} \times 18$
 $= 8.$

10

计算: $\frac{3}{7} \times 9 - 6 \div 2\frac{1}{3} + \frac{3}{7} = \underline{\hspace{2cm}}.$

【答案】 $\frac{12}{7}$

【解析】 $\frac{3}{7} \times 9 - 6 \div 2\frac{1}{3} + \frac{3}{7}$
 $= \frac{3}{7} \times 9 - 6 \times \frac{3}{7} + \frac{3}{7} \times 1$
 $= \frac{3}{7} \times (9 - 6 + 1)$
 $= \frac{3}{7} \times 4$
 $= \frac{12}{7}.$