



Grade 8

Mathematics

Multiplication and Division of Mixed Fractions

Question 1: Multiplication and Division of mixed numbers

1. $3\frac{4}{5} \times 1\frac{3}{19}$

2. $6\frac{4}{5} \times 2\frac{5}{6}$

3. $7\frac{5}{7} \div 3\frac{3}{8}$

4. $3\frac{4}{5} \div 4\frac{3}{4}$

5. $2\frac{5}{8} \times 3\frac{8}{24}$

6. $1\frac{16}{35} \div 2\frac{5}{6}$

① $3\frac{4}{5} \times 1\frac{3}{19}$
 $= \frac{19}{5} \times \frac{22}{19}$
 $= \frac{22}{5}$
 $= 4\frac{2}{5}$

② $6\frac{4}{5} \times 2\frac{3}{6}$
 $= \frac{34}{5} \times \frac{15}{6}$
 $= \frac{17}{1}$
 $= 17$

③ $7\frac{5}{7} \div 3\frac{3}{8}$
 $= \frac{54}{7} \div \frac{27}{8}$
 $= \frac{54}{7} \times \frac{8}{27}$
 $= \frac{16}{7}$
 $= 2\frac{2}{7}$

④ $3\frac{4}{5} \div 4\frac{3}{4}$
 $= \frac{19}{5} \div \frac{19}{4}$
 $= \frac{19}{5} \times \frac{4}{19}$
 $= \frac{4}{5}$

⑤ $2\frac{5}{8} \times 3\frac{8}{24}$
 $= \frac{21}{8} \times \frac{28}{24}$
 $= \frac{63}{8}$
 $= 7\frac{7}{8}$

⑥ $1\frac{16}{35} \div 2\frac{5}{6}$
 $= \frac{51}{35} \div \frac{17}{6}$
 $= \frac{51}{35} \times \frac{6}{17}$
 $= \frac{18}{35}$

Question 2: Words problems – multiplication and division mixed numbers

1. Hannah is baking cupcakes to take to school on her birthday. The recipe she has can make 8 giant cupcakes. She needs 28 cupcakes ($4\frac{1}{2}$ times the recipe). Each batch needs $2\frac{4}{7}$ cups of flour. How much flour does Hannah use altogether?

① $4\frac{1}{2} \times 2\frac{4}{7} = 11\frac{4}{7}$
 $\frac{9}{2} \times \frac{18}{7}$
 $= \frac{81}{7}$
 $= 11\frac{4}{7}$
Hannah uses $11\frac{4}{7}$ cups of flour.

2. 3 friends club together to buy chocolate. The buy $7\frac{5}{15}$ chocolates (an odd amount, inspired by my need to create this word problem). The third friend only gave a fifth as much money as the others and so receives only half the amount of chocolate (in other words, they need to divide it into $2\frac{1}{5}$ piles).

$$\begin{aligned} \textcircled{2} \quad 7\frac{5}{15} \div 2\frac{1}{5} &= 3\frac{1}{3} \\ &= \frac{110}{15} \div \frac{11}{5} \\ &= \frac{110}{15} \times \frac{5}{11} \\ &= \frac{10}{3} \\ &= 3\frac{1}{3} \end{aligned}$$

Each of the big piles is $3\frac{1}{3}$ chocolates.

3. Ricky does $1\frac{1}{6}$ hours of CrossFit every week. How much CrossFit will he do in $3\frac{1}{7}$ (assuming that in the week where he does 1 day, he does $\frac{1}{7}$ as much as a full week)?

$$\begin{aligned} \textcircled{3} \quad 1\frac{1}{6} \times 3\frac{1}{7} &= 3\frac{2}{3} \\ &= \frac{7}{6} \times \frac{22}{7} \\ &= \frac{11}{3} \\ &= 3\frac{2}{3} \end{aligned}$$

Ricky does $3\frac{2}{3}$ hours of CrossFit.

4. What is eight and four sevenths divided by two and four sixths?

$$\begin{aligned} \textcircled{4} \quad 8\frac{4}{7} \div 2\frac{4}{6} &= 3\frac{3}{14} \\ &= \frac{60}{7} \div \frac{16}{6} \quad \text{It is } 3\frac{3}{14}. \\ &= \frac{60}{7} \times \frac{6}{16} \\ &= \frac{45}{14} \\ &= 3\frac{3}{14} \end{aligned}$$