

# Umiejętność 1.12 - Mnożenie i Dzielenie Ułamków

## Umiejętność podstawowa

### Mnożenie Ułamków

- **Zasada:** Aby pomnożyć dwa ułamki, mnożymy liczniki przez siebie i mianowniki przez siebie.
- **Krok po Kroku:**
  1. Mnożymy liczniki:  $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$
  2. Mnożymy mianowniki:  $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$
  3. Upraszczamy ułamek, jeśli to możliwe.
- **Przykład:**  $\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \frac{8}{15}$

### Dzielenie Ułamków

- **Zasada:** Aby podzielić dwa ułamki, mnożymy pierwszy ułamek przez odwrotność drugiego ułamka.
- **Krok po Kroku:**
  1. Odwracamy drugi ułamek (zmieniamy licznik z mianownikiem).
  2. Mnożymy pierwszy ułamek przez odwrotność drugiego:  $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c}$
  3. Mnożymy liczniki i mianowniki:  $\frac{a}{b} \div \frac{c}{d} = \frac{a \times d}{b \times c}$
  4. Upraszczamy ułamek, jeśli to możliwe.
- **Przykład:**  $\frac{3}{4} \div \frac{2}{5} = \frac{3}{4} \times \frac{5}{2} = \frac{3 \times 5}{4 \times 2} = \frac{15}{8}$

**Zadanie 1**

Oblicz:  $\frac{2}{5} \times \frac{3}{4}$

**Zadanie 2**

Oblicz:  $\frac{7}{8} \div \frac{2}{3}$

**Zadanie 3**

Oblicz:  $\frac{5}{6} \times \frac{3}{7}$

**Zadanie 4**

Oblicz:  $\frac{9}{10} \div \frac{3}{5}$

**Zadanie 5**

Oblicz:  $\frac{4}{9} \times \frac{6}{11}$

**Zadanie 6**

Oblicz:  $\frac{7}{12} \div \frac{5}{8}$

**Zadanie 7**

Oblicz:  $\frac{2}{3} \times \frac{9}{14}$

**Zadanie 8**

Oblicz:  $\frac{11}{15} \div \frac{7}{10}$

**Zadanie 9**

Oblicz:  $\frac{3}{4} \times \frac{8}{9}$

**Zadanie 10**

Oblicz:  $\frac{5}{6} \div \frac{2}{7}$

**Zadanie 11**

Oblicz:  $\frac{1}{2} \times \frac{4}{5}$

**Zadanie 12**

Oblicz:  $\frac{9}{16} \div \frac{3}{8}$

**Zadanie 13**

Oblicz:  $\frac{7}{10} \times \frac{5}{6}$

**Zadanie 14**

Oblicz:  $\frac{8}{13} \div \frac{4}{9}$

**Zadanie 15**

Oblicz:  $\frac{5}{8} \times \frac{7}{12}$

**Zadanie 16**

Oblicz:  $\frac{6}{7} \div \frac{2}{5}$

**Zadanie 17**

Oblicz:  $\frac{2}{5} \times \frac{9}{11}$

**Zadanie 18**

Oblicz:  $\frac{4}{9} \div \frac{5}{6}$

**Zadanie 19**

Oblicz:  $\frac{3}{7} \times \frac{6}{13}$

**Zadanie 20**

Oblicz:  $\frac{8}{15} \div \frac{4}{5}$

**Zadanie 21**

Oblicz:  $\frac{5}{12} \times \frac{3}{8}$

**Zadanie 22**

Oblicz:  $\frac{7}{9} \div \frac{2}{3}$

**Zadanie 23**

Oblicz:  $\frac{11}{14} \times \frac{4}{7}$

**Zadanie 24**

Oblicz:  $\frac{9}{10} \div \frac{3}{5}$

**Zadanie 25**

Oblicz:  $\frac{2}{5} \times \frac{7}{9}$

**Zadanie 26**

Oblicz:  $\frac{4}{11} \div \frac{6}{7}$

**Zadanie 27**

Oblicz:  $\frac{1}{3} \times \frac{5}{8}$

**Zadanie 28**

Oblicz:  $\frac{7}{16} \div \frac{3}{4}$

**Zadanie 29**

Oblicz:  $\frac{5}{9} \times \frac{2}{7}$

**Zadanie 30**

Oblicz:  $\frac{6}{13} \div \frac{5}{6}$

**Zadanie 31**

Oblicz:  $\frac{3}{8} \times \frac{4}{9}$

**Zadanie 32**

Oblicz:  $\frac{5}{12} \div \frac{8}{15}$

**Zadanie 33**

Oblicz:  $\frac{7}{8} \times \frac{2}{5}$

**Zadanie 34**

Oblicz:  $\frac{3}{7} \div \frac{9}{10}$

**Zadanie 35**

Oblicz:  $\frac{8}{11} \times \frac{5}{12}$

**Zadanie 36**

Oblicz:  $\frac{4}{9} \div \frac{7}{8}$

**Zadanie 37**

Oblicz:  $\frac{5}{6} \times \frac{2}{3}$

**Zadanie 38**

Oblicz:  $\frac{9}{14} \div \frac{5}{7}$

**Zadanie 39**

Oblicz:  $\frac{11}{15} \times \frac{3}{4}$

**Zadanie 40**

Oblicz:  $\frac{2}{3} \div \frac{8}{9}$

**Zadanie 41**

Oblicz:  $\frac{7}{9} \times \frac{4}{5}$

**Zadanie 42**

Oblicz:  $\frac{5}{8} \div \frac{3}{10}$

**Zadanie 43**

Oblicz:  $\frac{8}{13} \times \frac{9}{11}$

**Zadanie 44**

Oblicz:  $\frac{2}{5} \div \frac{7}{12}$

**Zadanie 45**

Oblicz:  $\frac{3}{4} \times \frac{5}{8}$

**Zadanie 46**

Oblicz:  $\frac{9}{10} \div \frac{4}{7}$

**Zadanie 47**

Oblicz:  $\frac{6}{7} \times \frac{2}{9}$

**Zadanie 48**

Oblicz:  $\frac{11}{12} \div \frac{5}{6}$

**Zadanie 49**

Oblicz:  $\frac{1}{5} \times \frac{8}{9}$

**Zadanie 50**

Oblicz:  $\frac{7}{10} \div \frac{9}{14}$

## Odpowiedzi

### Zadanie 1

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20} = \frac{3}{10}$$

### Zadanie 2

$$\frac{7}{8} \div \frac{2}{3} = \frac{7}{8} \times \frac{3}{2} = \frac{21}{16}$$

### Zadanie 3

$$\frac{5}{6} \times \frac{3}{7} = \frac{15}{42} = \frac{5}{14}$$

### Zadanie 4

$$\frac{9}{10} \div \frac{3}{5} = \frac{9}{10} \times \frac{5}{3} = \frac{45}{30} = \frac{3}{2}$$

### Zadanie 5

$$\frac{4}{9} \times \frac{6}{11} = \frac{24}{99} = \frac{8}{33}$$

### Zadanie 6

$$\frac{7}{12} \div \frac{5}{8} = \frac{7}{12} \times \frac{8}{5} = \frac{56}{60} = \frac{14}{15}$$

### Zadanie 7

$$\frac{2}{3} \times \frac{9}{14} = \frac{18}{42} = \frac{3}{7}$$

### Zadanie 8

$$\frac{11}{15} \div \frac{7}{10} = \frac{11}{15} \times \frac{10}{7} = \frac{110}{105} = \frac{22}{21}$$

### Zadanie 9

$$\frac{3}{4} \times \frac{8}{9} = \frac{24}{36} = \frac{2}{3}$$

### Zadanie 10

$$\frac{5}{6} \div \frac{2}{7} = \frac{5}{6} \times \frac{7}{2} = \frac{35}{12}$$

### Zadanie 11

$$\frac{1}{2} \times \frac{4}{5} = \frac{4}{10} = \frac{2}{5}$$

**Zadanie 12**

$$\frac{9}{16} \div \frac{3}{8} = \frac{9}{16} \times \frac{8}{3} = \frac{72}{48} = \frac{3}{2}$$

**Zadanie 13**

$$\frac{7}{10} \times \frac{5}{6} = \frac{35}{60} = \frac{7}{12}$$

**Zadanie 14**

$$\frac{8}{13} \div \frac{4}{9} = \frac{8}{13} \times \frac{9}{4} = \frac{72}{52} = \frac{18}{13}$$

**Zadanie 15**

$$\frac{5}{8} \times \frac{7}{12} = \frac{35}{96}$$

**Zadanie 16**

$$\frac{6}{7} \div \frac{2}{5} = \frac{6}{7} \times \frac{5}{2} = \frac{30}{14} = \frac{15}{7}$$

**Zadanie 17**

$$\frac{2}{5} \times \frac{9}{11} = \frac{18}{55}$$

**Zadanie 18**

$$\frac{4}{9} \div \frac{5}{6} = \frac{4}{9} \times \frac{6}{5} = \frac{24}{45} = \frac{8}{15}$$

**Zadanie 19**

$$\frac{3}{7} \times \frac{6}{13} = \frac{18}{91}$$

**Zadanie 20**

$$\frac{8}{15} \div \frac{4}{5} = \frac{8}{15} \times \frac{5}{4} = \frac{40}{60} = \frac{2}{3}$$

**Zadanie 21**

$$\frac{5}{12} \times \frac{3}{8} = \frac{15}{96} = \frac{5}{32}$$

**Zadanie 22**

$$\frac{7}{9} \div \frac{2}{3} = \frac{7}{9} \times \frac{3}{2} = \frac{21}{18} = \frac{7}{6}$$



**Zadanie 23**

$$\frac{11}{14} \times \frac{4}{7} = \frac{44}{98} = \frac{22}{49}$$

**Zadanie 24**

$$\frac{9}{10} \div \frac{3}{5} = \frac{9}{10} \times \frac{5}{3} = \frac{45}{30} = \frac{3}{2}$$

**Zadanie 25**

$$\frac{2}{5} \times \frac{7}{9} = \frac{14}{45}$$

**Zadanie 26**

$$\frac{4}{11} \div \frac{6}{7} = \frac{4}{11} \times \frac{7}{6} = \frac{28}{66} = \frac{14}{33}$$

**Zadanie 27**

$$\frac{1}{3} \times \frac{5}{8} = \frac{5}{24}$$

**Zadanie 28**

$$\frac{7}{16} \div \frac{3}{4} = \frac{7}{16} \times \frac{4}{3} = \frac{28}{48} = \frac{7}{12}$$

**Zadanie 29**

$$\frac{5}{9} \times \frac{2}{7} = \frac{10}{63}$$

**Zadanie 30**

$$\frac{6}{13} \div \frac{5}{6} = \frac{6}{13} \times \frac{6}{5} = \frac{36}{65}$$

**Zadanie 31**

$$\frac{3}{8} \times \frac{4}{9} = \frac{12}{72} = \frac{1}{6}$$

**Zadanie 32**

$$\frac{5}{12} \div \frac{8}{15} = \frac{5}{12} \times \frac{15}{8} = \frac{75}{96} = \frac{25}{32}$$

**Zadanie 33**

$$\frac{7}{8} \times \frac{2}{5} = \frac{14}{40} = \frac{7}{20}$$

**Zadanie 34**

$$\frac{3}{7} \div \frac{9}{10} = \frac{3}{7} \times \frac{10}{9} = \frac{30}{63} = \frac{10}{21}$$

**Zadanie 35**

$$\frac{8}{11} \times \frac{5}{12} = \frac{40}{132} = \frac{10}{33}$$

**Zadanie 36**

$$\frac{4}{9} \div \frac{7}{8} = \frac{4}{9} \times \frac{8}{7} = \frac{32}{63}$$

**Zadanie 37**

$$\frac{5}{6} \times \frac{2}{3} = \frac{10}{18} = \frac{5}{9}$$

**Zadanie 38**

$$\frac{9}{14} \div \frac{5}{7} = \frac{9}{14} \times \frac{7}{5} = \frac{63}{70} = \frac{9}{10}$$

**Zadanie 39**

$$\frac{11}{15} \times \frac{3}{4} = \frac{33}{60} = \frac{11}{20}$$

**Zadanie 40**

$$\frac{2}{3} \div \frac{8}{9} = \frac{2}{3} \times \frac{9}{8} = \frac{18}{24} = \frac{3}{4}$$

**Zadanie 41**

$$\frac{7}{9} \times \frac{4}{5} = \frac{28}{45}$$

**Zadanie 42**

$$\frac{5}{8} \div \frac{3}{10} = \frac{5}{8} \times \frac{10}{3} = \frac{50}{24} = \frac{25}{12}$$

**Zadanie 43**

$$\frac{8}{13} \times \frac{9}{11} = \frac{72}{143}$$

**Zadanie 44**

$$\frac{2}{5} \div \frac{7}{12} = \frac{2}{5} \times \frac{12}{7} = \frac{24}{35}$$

**Zadanie 45**

$$\frac{3}{4} \times \frac{5}{8} = \frac{15}{32}$$

**Zadanie 46**

$$\frac{9}{10} \div \frac{4}{7} = \frac{9}{10} \times \frac{7}{4} = \frac{63}{40} = \frac{63}{40}$$

**Zadanie 47**

$$\frac{6}{7} \times \frac{2}{9} = \frac{12}{63} = \frac{4}{21}$$

**Zadanie 48**

$$\frac{11}{12} \div \frac{5}{6} = \frac{11}{12} \times \frac{6}{5} = \frac{66}{60} = \frac{11}{10}$$

**Zadanie 49**

$$\frac{1}{5} \times \frac{8}{9} = \frac{8}{45}$$

**Zadanie 50**

$$\frac{7}{10} \div \frac{9}{14} = \frac{7}{10} \times \frac{14}{9} = \frac{98}{90} = \frac{49}{45}$$