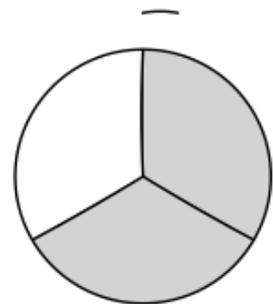
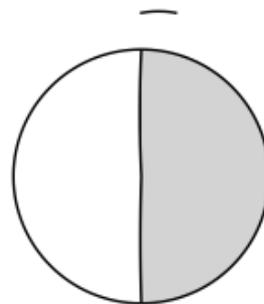
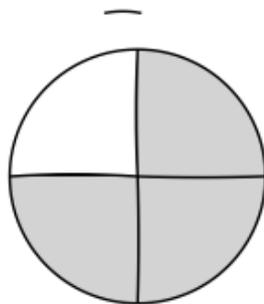
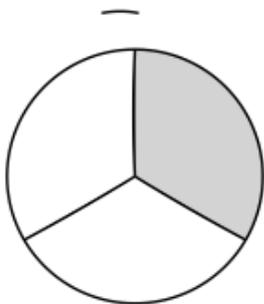
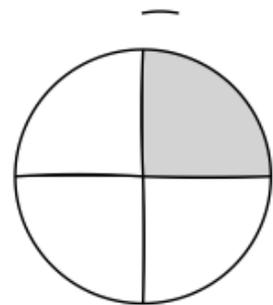
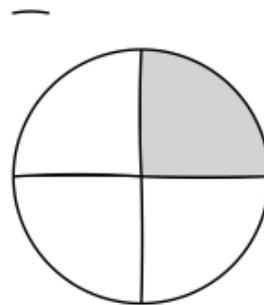
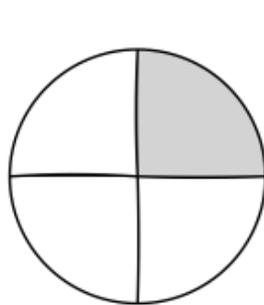
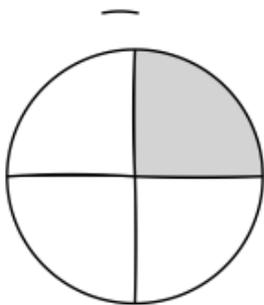
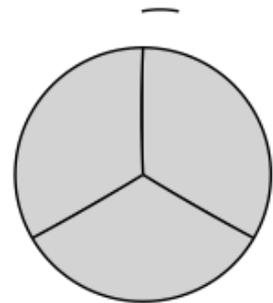
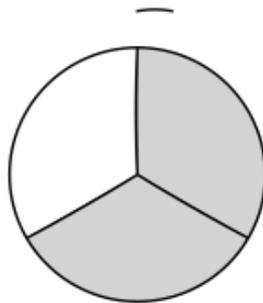
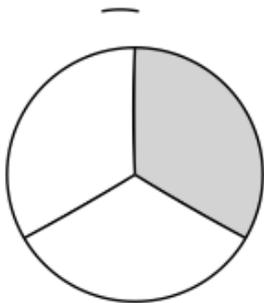
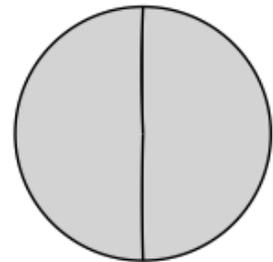
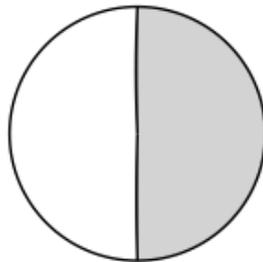
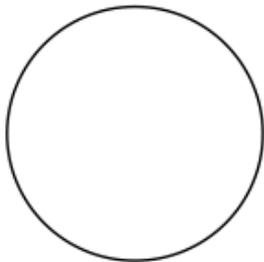


Bruchteile rund benennen

Aufgabenblatt 1

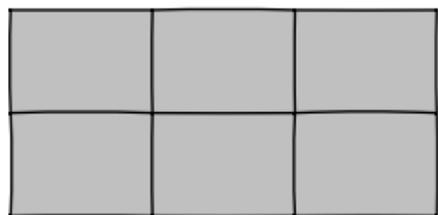
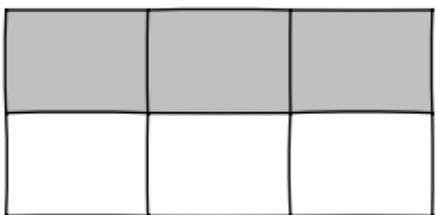
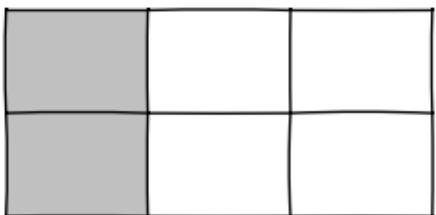
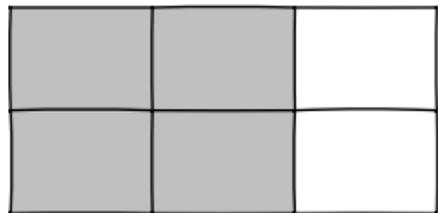
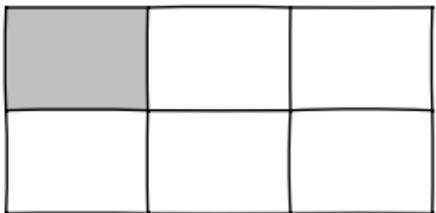
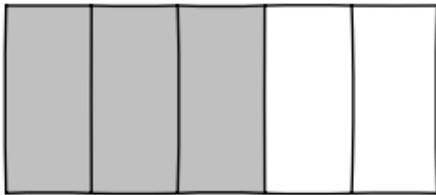
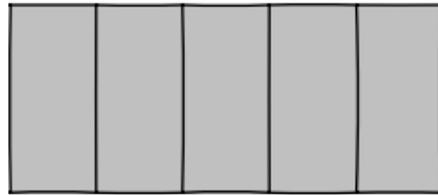
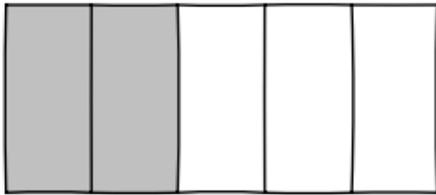
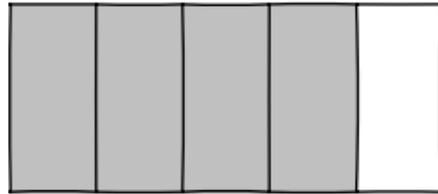
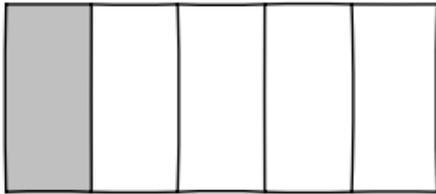
Benenne die Teile



Bruchteile eckig benennen

Aufgabenblatt 2

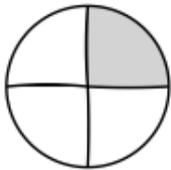
Benenne die Bruchteile



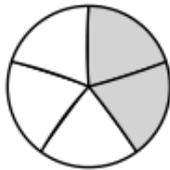
Bruchteile rund benennen

Lösungsblatt 3

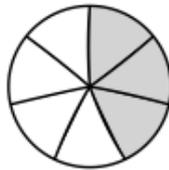
Benenne die folgenden Bruchteile



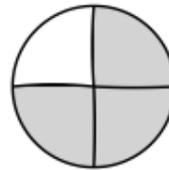
$$\frac{1}{4}$$



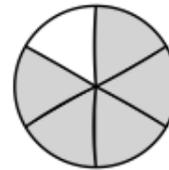
$$\frac{2}{5}$$



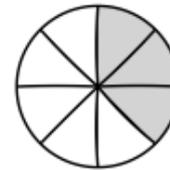
$$\frac{3}{7}$$



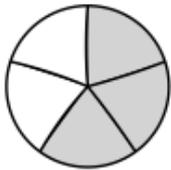
$$\frac{3}{4}$$



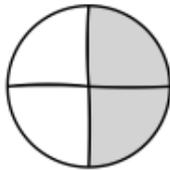
$$\frac{5}{6}$$



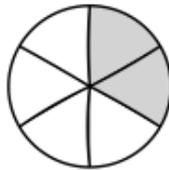
$$\frac{3}{8}$$



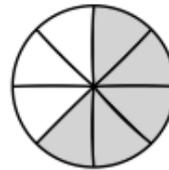
$$\frac{3}{5}$$



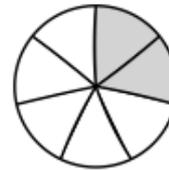
$$\frac{2}{4}$$



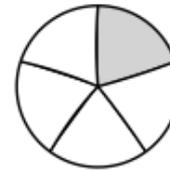
$$\frac{2}{6}$$



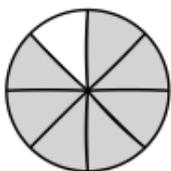
$$\frac{5}{8}$$



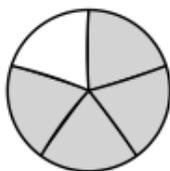
$$\frac{2}{7}$$



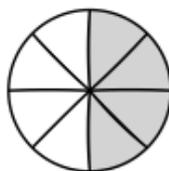
$$\frac{1}{5}$$



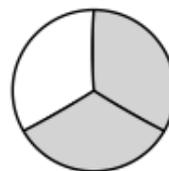
$$\frac{7}{8}$$



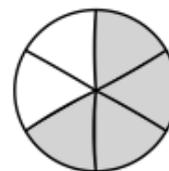
$$\frac{4}{5}$$



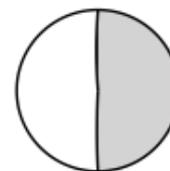
$$\frac{4}{8}$$



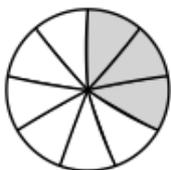
$$\frac{2}{3}$$



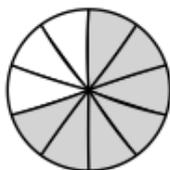
$$\frac{4}{6}$$



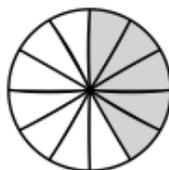
$$\frac{1}{2}$$



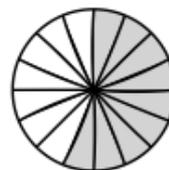
$$\frac{3}{9}$$



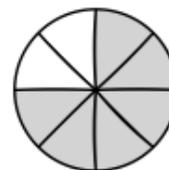
$$\frac{7}{10}$$



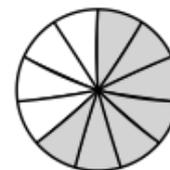
$$\frac{5}{12}$$



$$\frac{9}{16}$$



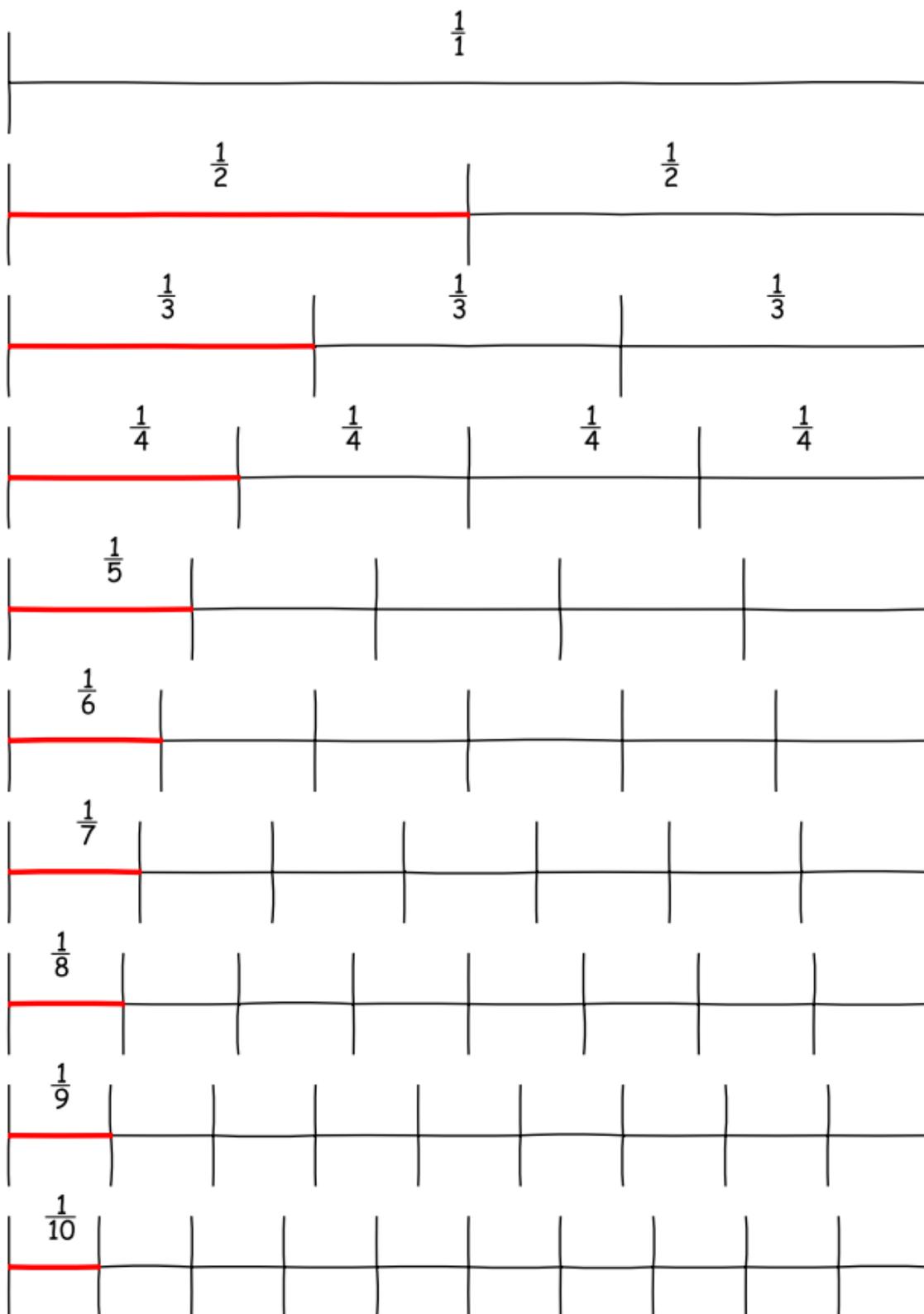
$$\frac{6}{8}$$



$$\frac{7}{11}$$

Bruchteile am Längenmodell

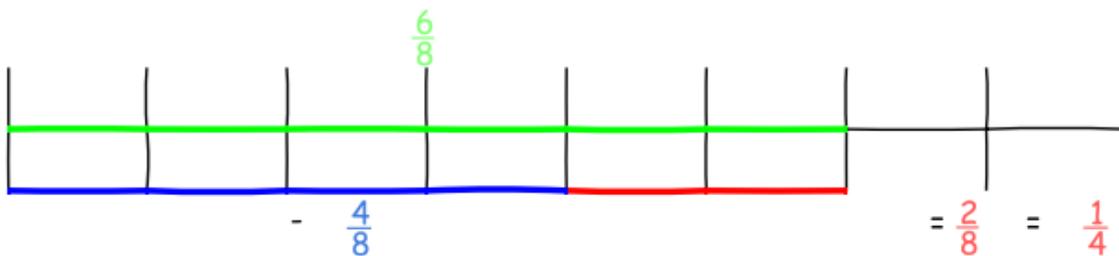
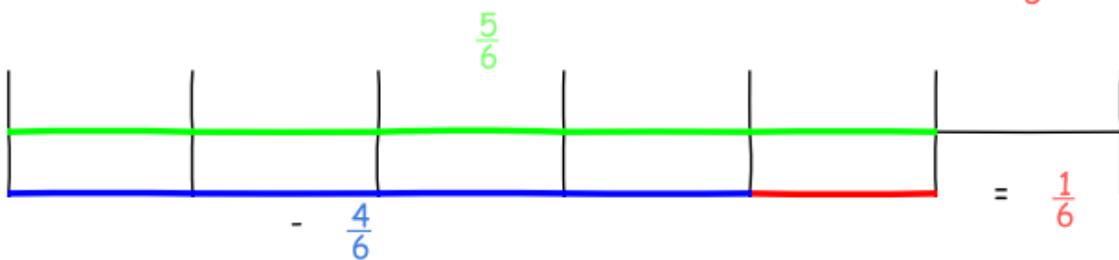
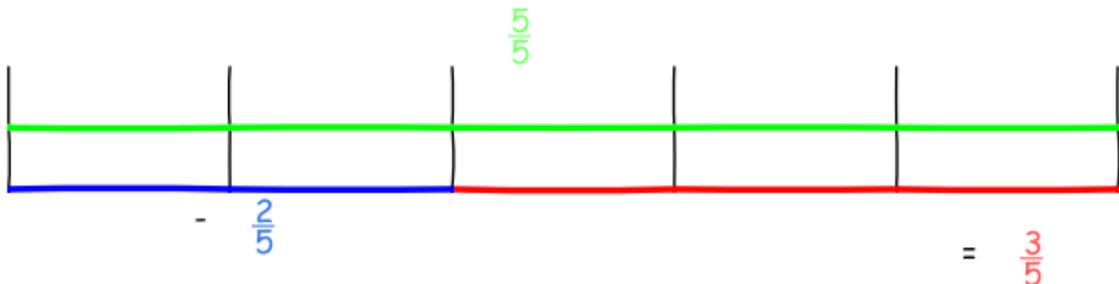
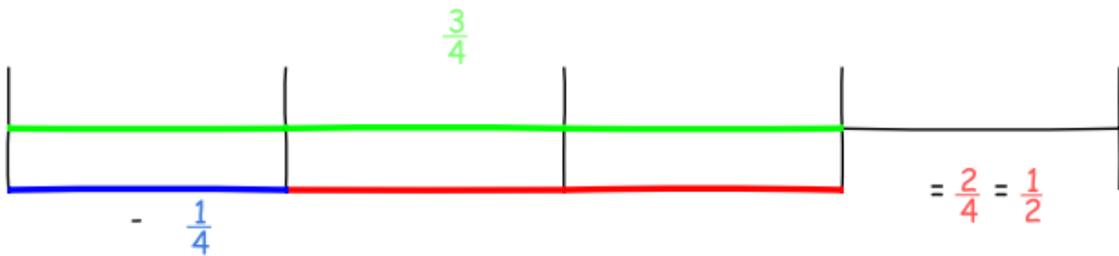
Beispielblatt



Subtrahieren von Bruchteilen am Längenmodell

Lösungsblatt 1

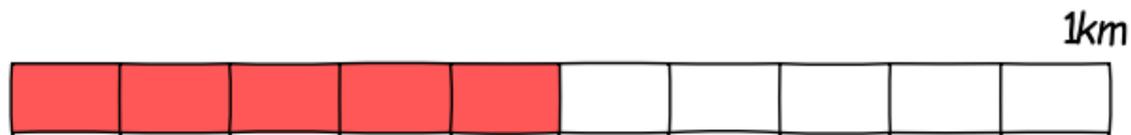
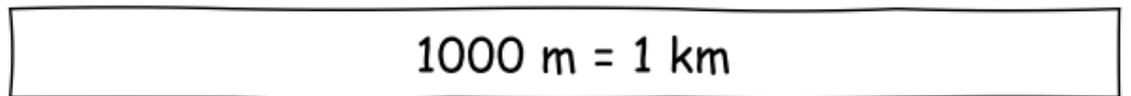
Markiere die beiden Bruchteile mit zwei verschiedenen Farben und ziehe eine rote Linie für das Ergebnis. Schreibe die Bruchteile und das Ergebnis als Bruchzahlen.



Bruchteile bei Längenmaßen

Lösungsblatt 3

Zeichne die angegebenen Meterlängen ein und schreibe als Bruch



$$500\text{m} = \frac{1}{2}\text{km}$$



$$300\text{m} = \frac{3}{10}\text{km}$$



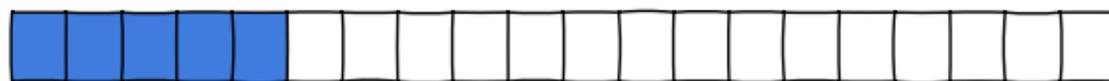
$$80\text{m} = \frac{8}{10}\text{km} = \frac{4}{5}\text{km}$$



$$750\text{m} = \frac{15}{20}\text{km} = \frac{3}{4}\text{km}$$



$$850\text{m} = \frac{17}{20}\text{m}$$

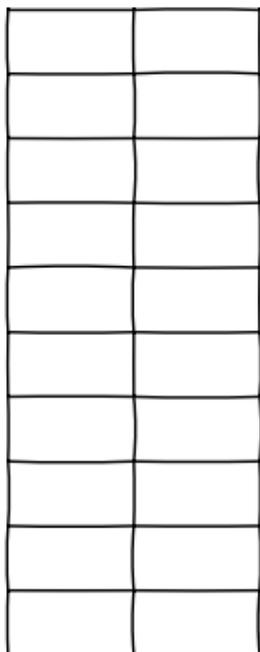


$$250\text{m} = \frac{5}{20}\text{km} = \frac{1}{4}\text{km}$$

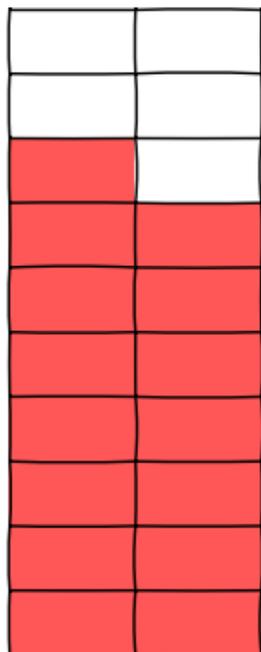


$$400\text{m} = \frac{8}{20}\text{km} = \frac{4}{10}\text{km} = \frac{2}{5}\text{km}$$

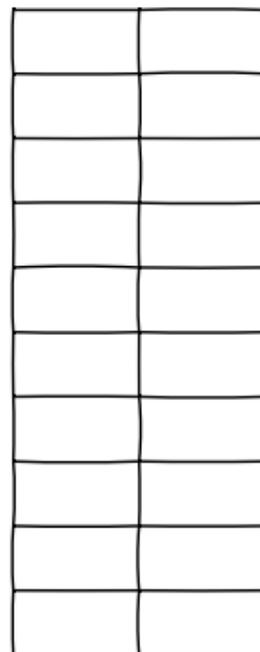
$1000\text{kg} = 1\text{t}$



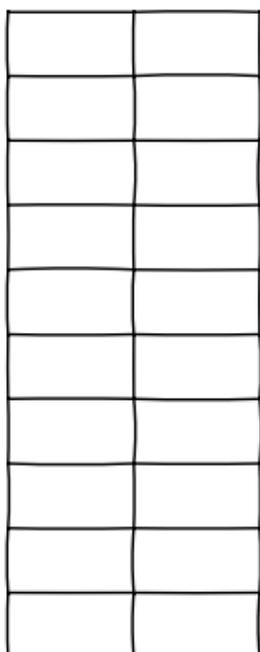
$250\text{kg} = \quad \text{t}$



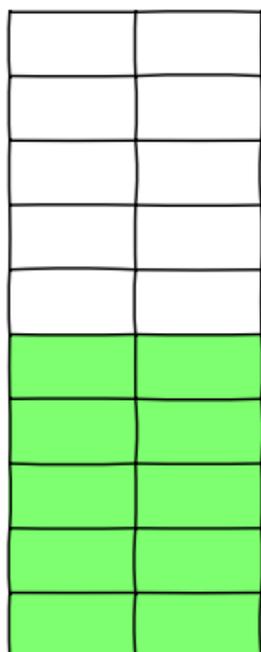
$\text{kg} = \quad \text{t}$



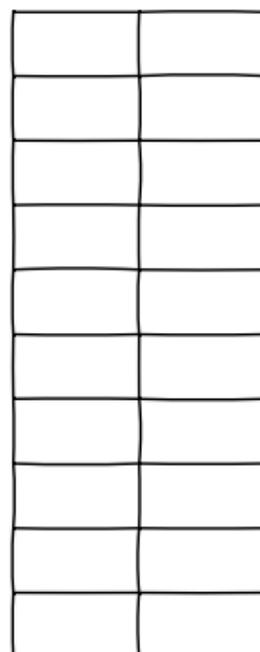
$600\text{kg} = \quad \text{t} = \quad \text{t}$



$900\text{kg} = \quad \text{t}$



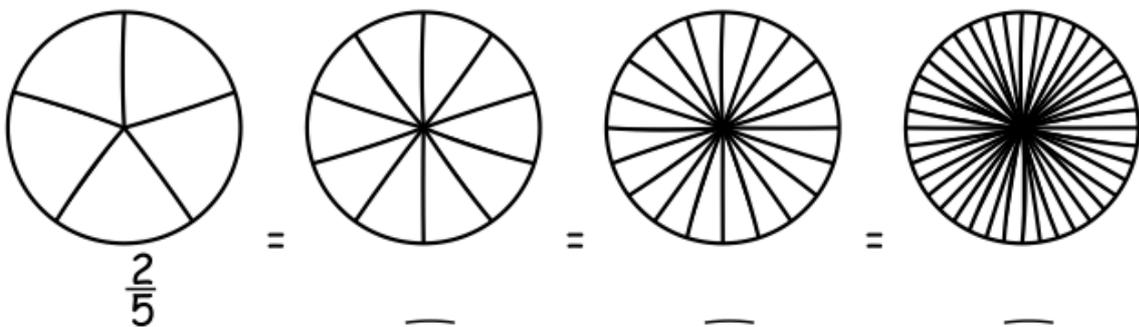
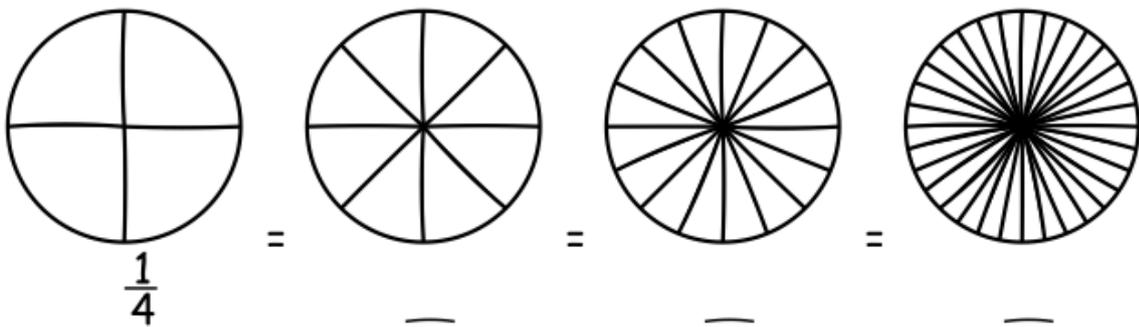
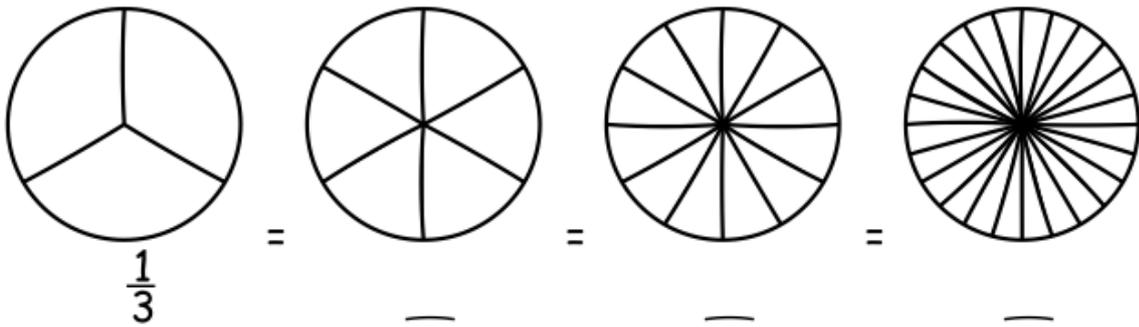
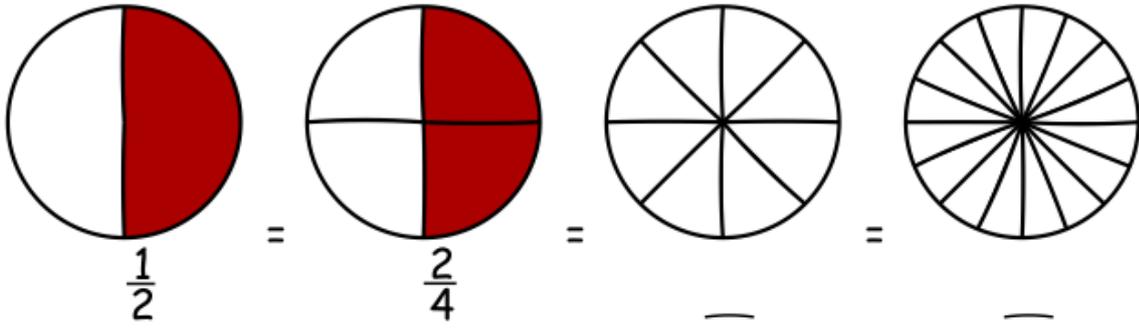
$\text{kg} = \quad \text{t}$
24



$200\text{kg} = \quad \text{t} = \quad \text{t}$

Brüche erweitern Kreismodell Arbeitsblatt 1

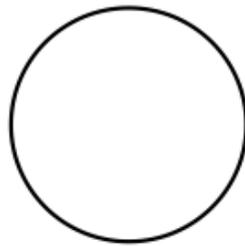
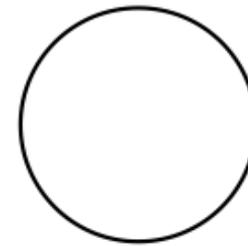
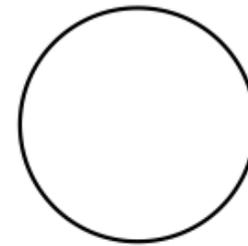
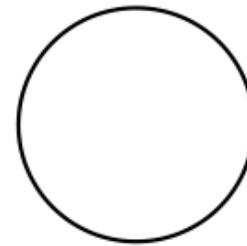
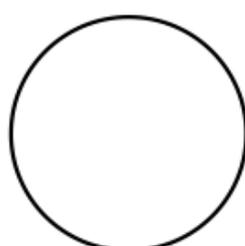
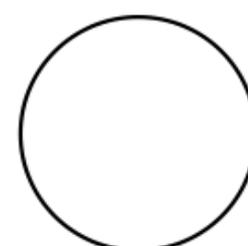
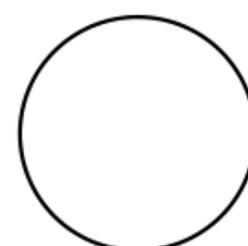
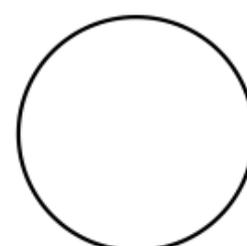
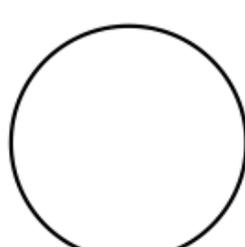
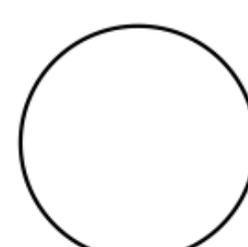
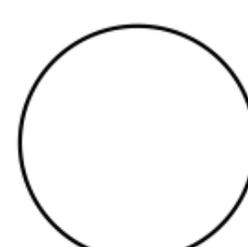
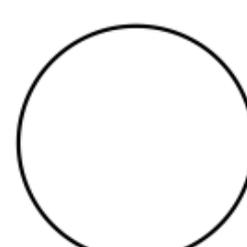
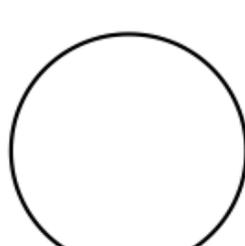
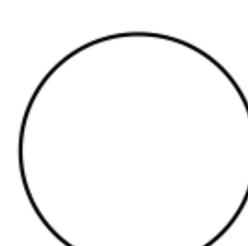
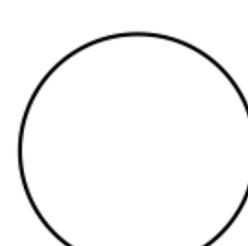
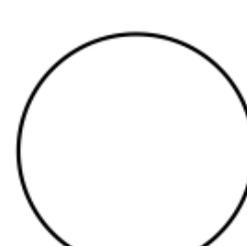
Erweitere die Brüche, indem Nenner und Zähler um dieselbe Zahl multipliziert werden. Es verringert sich die Größe der Bruchteile (Nenner) und vermehrt sich die Anzahl der Teile (Zähler)



Brüche kürzen Kreismodell

Vorlagenblatt

Finde eigene Bruchteile, die gekürzt werden können. Zeichne sie und schreibe die Brüche unter die Bruchkreise.

	=		=		=	
—		—		—		—
	=		=		=	
—		—		—		—
	=		=		=	
—		—		—		—
	=		=		=	
—		—		—		—

Vielfache und Teiler

Aufgabenblatt 3

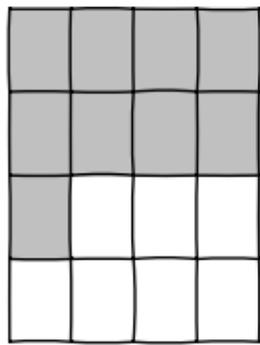
Finde das kleinste gemeinsame Vielfache (kgV) der beiden Zahlen

Zahl 1	Zahl 2	kgV
2	3	
3	4	
4	5	
5	6	
6	7	
7	8	
8	9	
9	10	
2	4	
2	5	
2	6	
3	5	
3	7	
3	9	
4	6	
4	8	
4	9	
5	10	
5	12	
5	15	

Zahl 1	Zahl 2	kgV
6	8	
6	10	
6	12	
6	20	
7	4	
7	5	
8	12	
8	16	
9	12	
9	15	
10	100	
12	15	
12	18	
12	20	
12	24	
12	30	
12	36	
12	40	
12	45	
12	60	

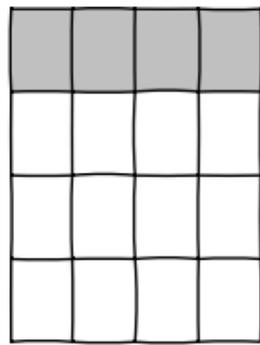
Bruchteile zusammenzählen

Aufgabenblatt 2



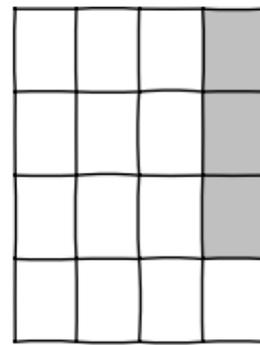
$\frac{9}{16}$

+

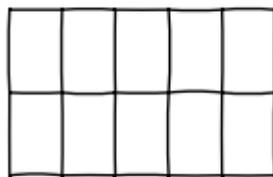


-

=

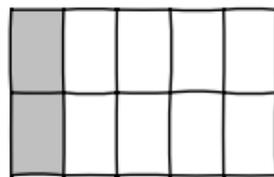


-



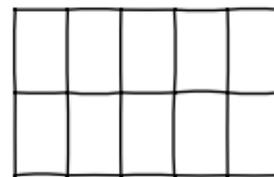
$\frac{7}{10}$

+

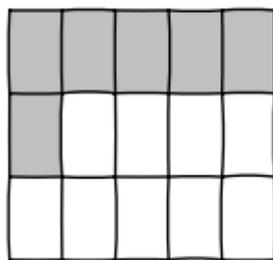


-

=

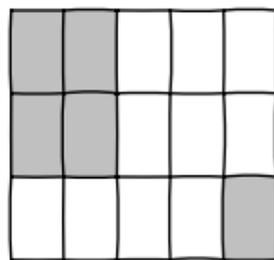


-



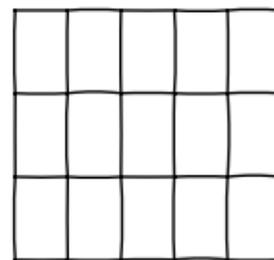
-

+

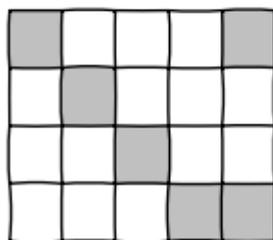


-

=

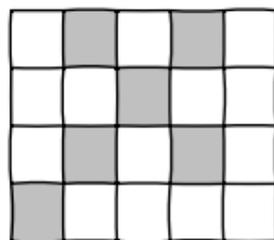


-



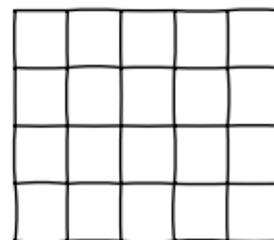
-

+



-

=

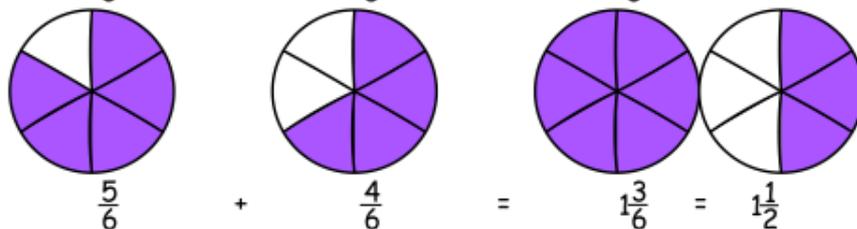
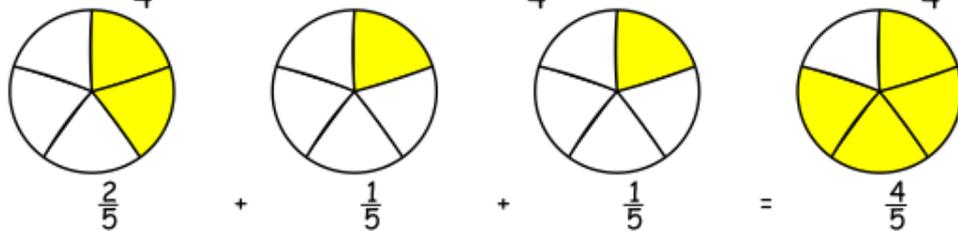
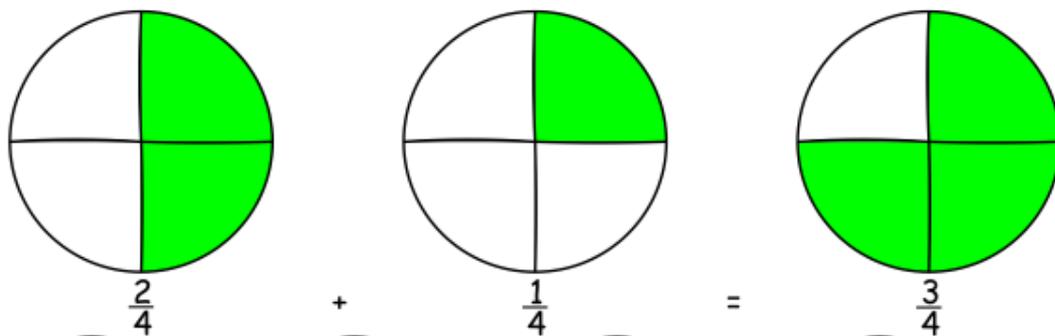
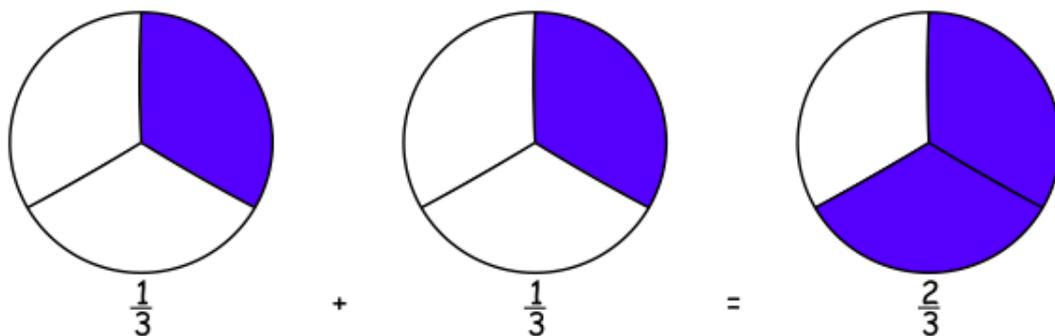
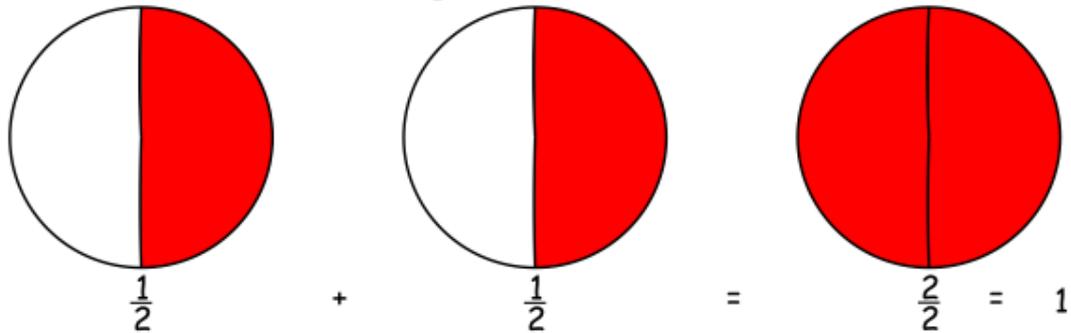


- = - = -

Addieren gleichnamiger Bruchteile Kreis

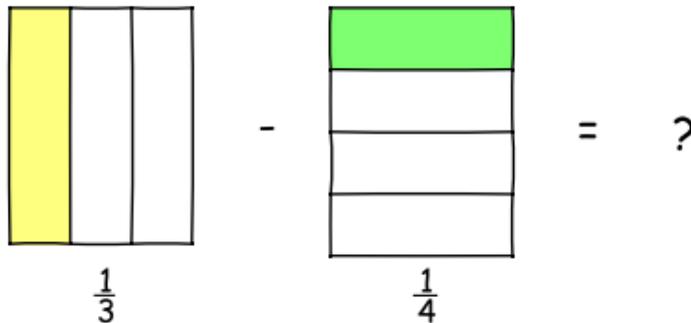
Beispielblatt

Gleichnamige Brüche (Bruchteile mit gleichem Nenner) werden addiert, indem die Zähler zusammengezählt werden. Der Nenner bleibt erhalten.

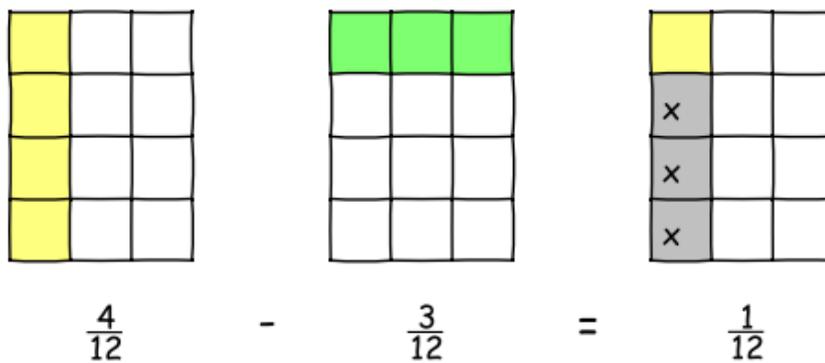


Subtrahieren ungleichnamiger Brüche Rechteckmodell Lösungsblatt 1

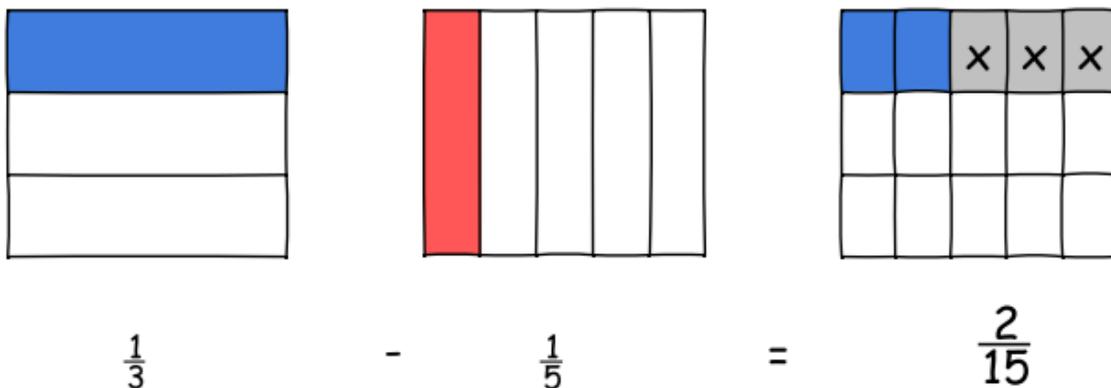
1 Schritt 1: Markiere die Bruchteile mit 2 verschiedenen Farben ein



Schritt 2: Wandle nun die beiden obigen Bruchteile in kleinere mit gemeinsamen Nenner um, markiere sie farbig und subtrahiere sie voneinander



2 Führe nun Schritt 1 und Schritt 2 in einem aus und zeichne die entsprechenden Linien, bzw. kleineren Bruchteile ins leere Rechtecke ein und markiere sie entsprechend farbig ein:

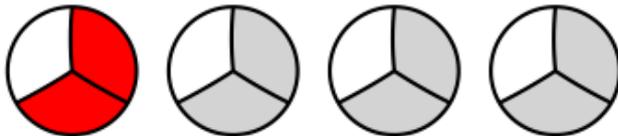


Brüche mit ganzen Zahlen multiplizieren

Aufgabenblatt 1

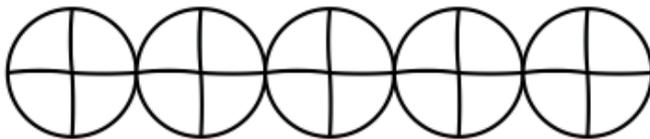
Färbe die Bruchteile und rechne aus

Wie viel ist $\frac{2}{3}$ von 4?



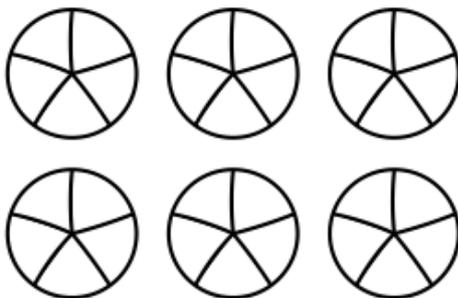
$$\frac{2}{3} \times 4 = \frac{2}{3} \times \frac{4}{1} = \underline{\quad} \underline{\quad}$$

Wie viel ist $\frac{3}{4}$ von 5?



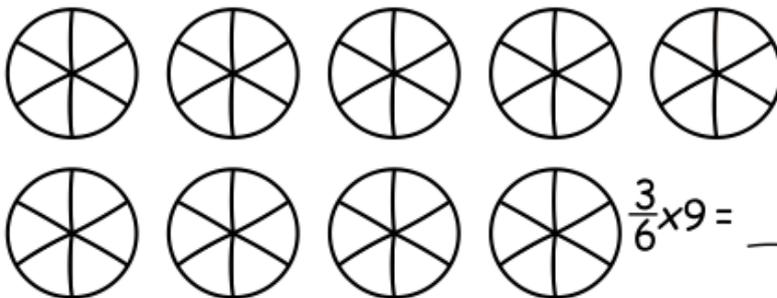
$$\frac{3}{4} \times 5 = \underline{\quad} \underline{\quad} \underline{\quad}$$

Wie viel ist $\frac{3}{5}$ von 6?



$$\frac{3}{5} \times 6 = \underline{\quad} \underline{\quad} \underline{\quad}$$

Wie viel ist $\frac{3}{6}$ von 9?

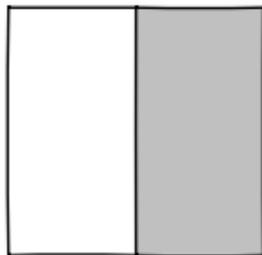


$$\frac{3}{6} \times 9 = \underline{\quad} \underline{\quad} \underline{\quad} \underline{\quad}$$

Brüche durch ganze Zahlen dividieren

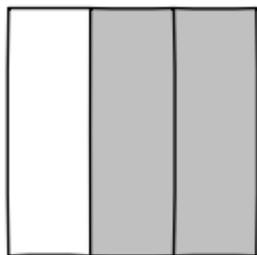
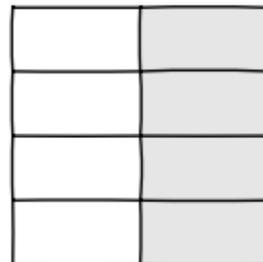
Aufgabenblatt 3

Zeichne in das Rechteck rechts farbig die Lösung ein und schreibe den Bruch als Ergebnis hinter die Rechnung.



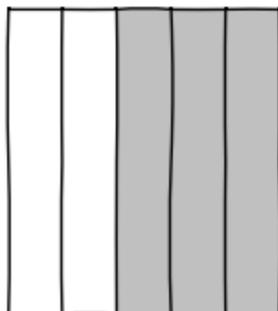
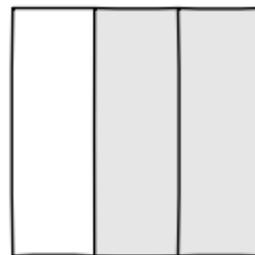
Ein Halbes wird auf vier aufgeteilt. Wie viel ist das?

$$\frac{1}{2} : 4 =$$



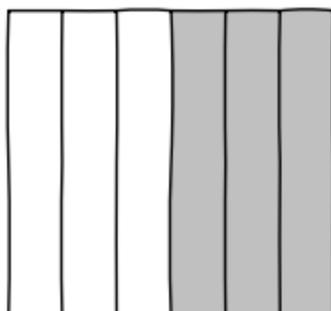
Zwei Drittel wird auf vier aufgeteilt? Wie viel ist das?

$$\frac{2}{3} : 4 =$$



Drei Fünftel werden auf vier aufgeteilt? Wie viel ist das?

$$\frac{3}{5} : 4 =$$



Drei Sechstel werden auf fünf aufgeteilt? Wie viel ist das?

$$\frac{3}{6} : 5 =$$

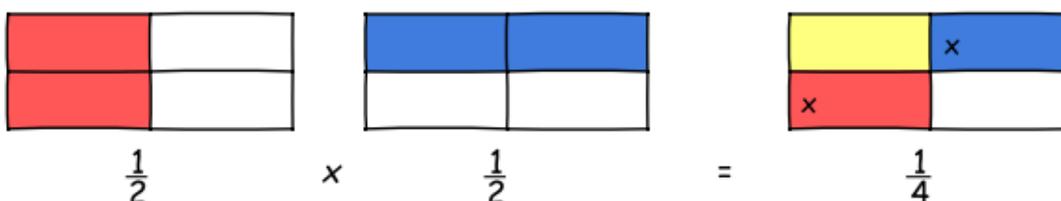


Multiplizieren gleichnamiger Bruchteile Rechteck Beispielblatt

Gleichnamige Brüche (Bruchteile mit gleichem Nenner) werden multipliziert, indem die Zähler miteinander malgenommen werden und die Nenner miteinander malgenommen werden. Die Überschneidungen sind das Ergebnis

1

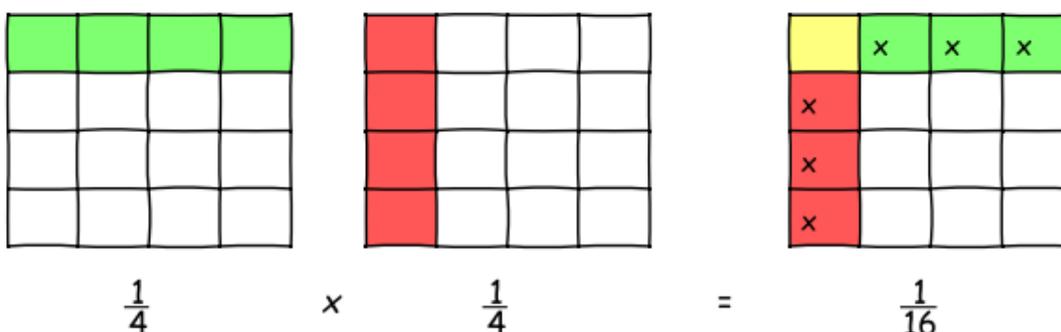
Frage: Wie viel ist die Hälfte von einem Halben?



Antwort: die Hälfte von einem Halben ist ein Viertel

2

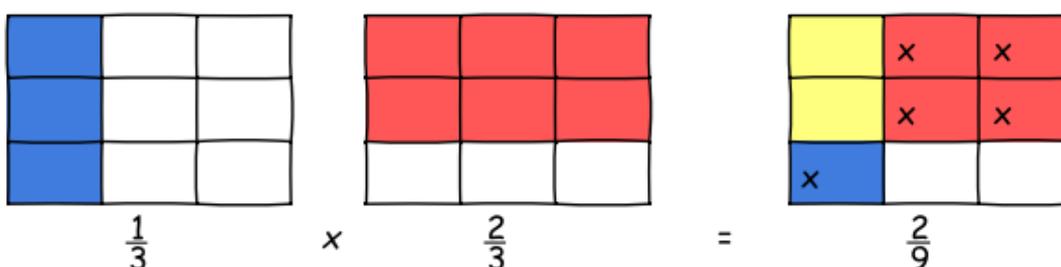
Frage: Wie viel ist ein Viertel von einem Viertel?



Antwort: ein Viertel von einem Viertel ist ein Sechzehntel.

3

Frage: Wie viel ist ein Drittel von zwei Dritteln?



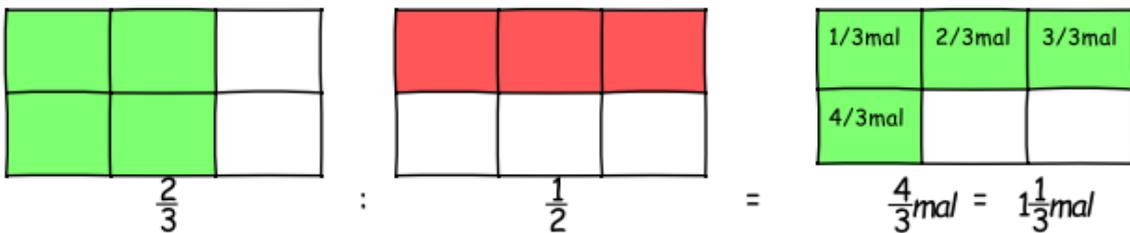
Antwort: ein Drittel von zwei Dritteln sind zwei Neuntel.

Dividieren ungleichnamiger Bruchteile Rechteckmodell Lösungsblatt 1

Bilde aus den beiden Nennern einen gemeinsamen mit dem kgV. Lege den ersten über den zweiten und färbe ihn in einer dritten Farbe oder schraffiere ihn. Lies ab, wie oft der zweite in den ersten Bruchteil (vom Ganzen) passt.

3

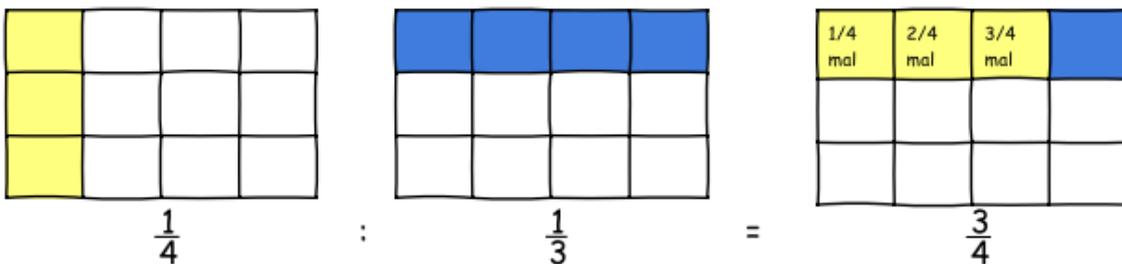
Frage: Wie oft passt ein Halbes in zwei Drittel hinein?



Antwort: Ein Halbes passt **eineindrittel Mal** in zwei Drittel hinein.

4

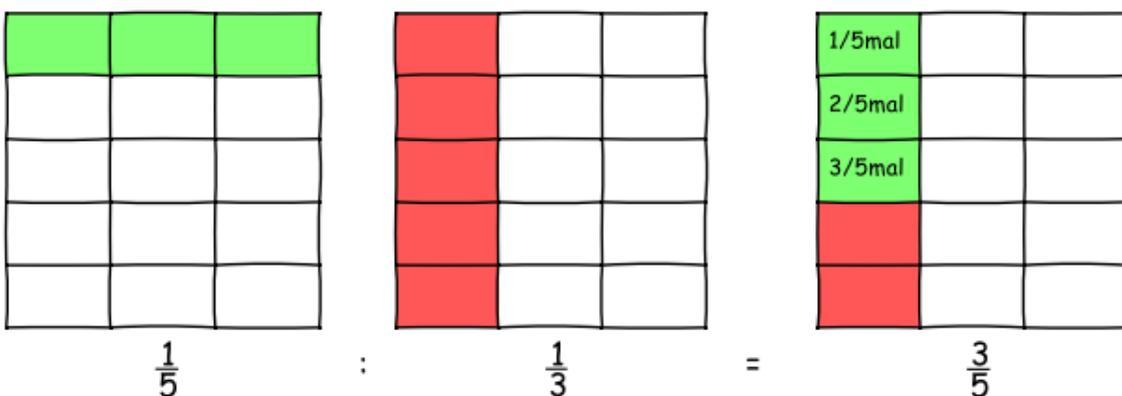
Frage: Wie oft passt ein Drittel in ein Viertel hinein?



Antwort: ein Drittel passt **dreiviertel Mal** in ein Viertel hinein.

5

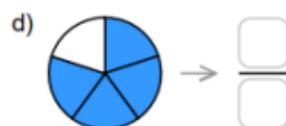
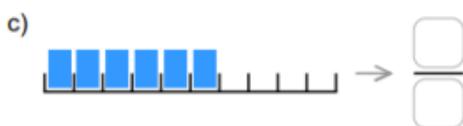
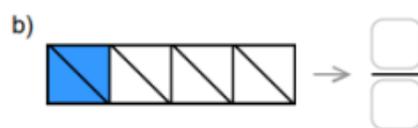
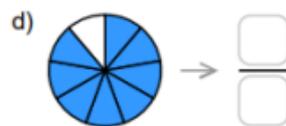
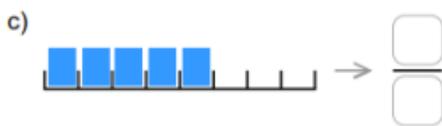
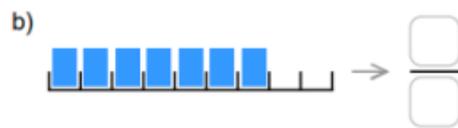
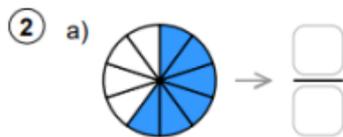
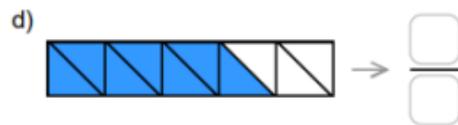
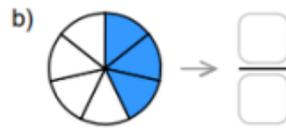
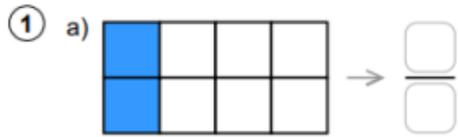
Frage: Wie oft passt ein Drittel in ein Fünftel?



Antwort: Ein Drittel passt **dreifünftel Mal** in ein Fünftel.

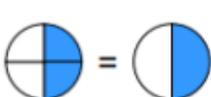
Brüche erkennen 1

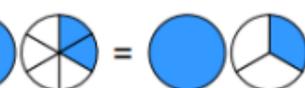
Notiere die Zeichnungen in Bruchschreibweise



Brüche kürzen 1

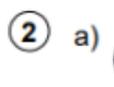
Notiere die Zeichnungen in Bruchschreibweise und kürze dann

① a)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

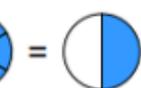
b)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

c)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

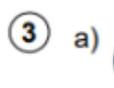
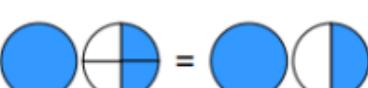
d)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

② a)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

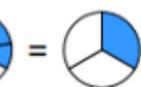
b)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

c)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

d)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

③ a)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

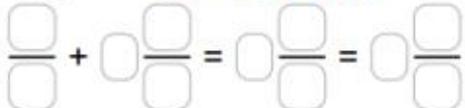
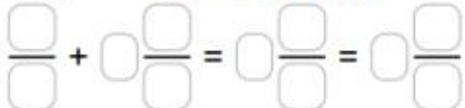
b)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

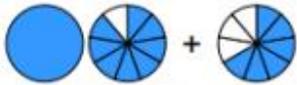
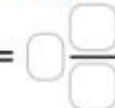
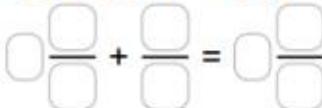
c)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

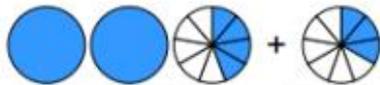
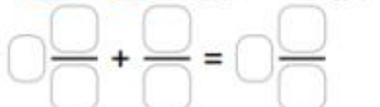
d)  = 
 $\rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

Gemischte Zahlen addieren 2

Notiere die Zeichnungen in Bruchschreibweise und rechne aus

① a)  +  = 

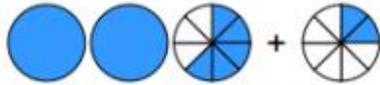
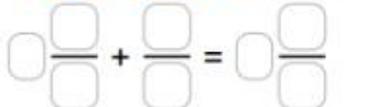
b)  +  = 

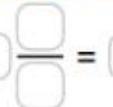
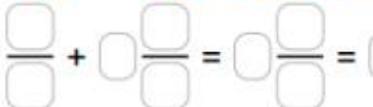
c)  +  = 

d)  +  = 

② a)  +  = 

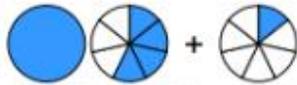
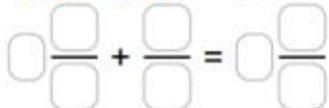
b)  +  = 

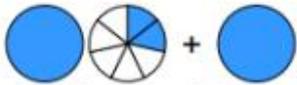
c)  +  = 

d)  +  = 

③ a)  +  = 

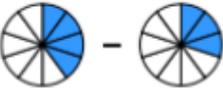
b)  +  = 

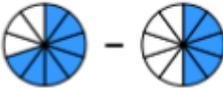
c)  +  = 

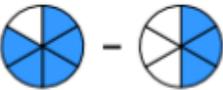
d)  +  = 

Brüche subtrahieren 2

Notiere die Zeichnungen in Bruchschreibweise und rechne aus

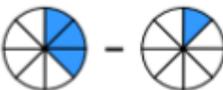
① a)  - 
 $\rightarrow \frac{4}{10} - \frac{3}{10} = \frac{1}{10}$

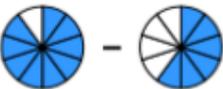
b)  - 
 $\rightarrow \frac{7}{10} - \frac{5}{10} = \frac{2}{10} = \frac{1}{5}$

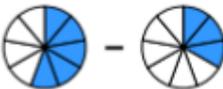
c)  - 
 $\rightarrow \frac{5}{6} - \frac{3}{6} = \frac{2}{6} = \frac{1}{3}$

d)  - 
 $\rightarrow \frac{2}{10} - \frac{1}{10} = \frac{1}{10}$

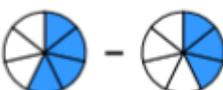
② a)  - 
 $\rightarrow \frac{7}{9} - \frac{6}{9} = \frac{1}{9}$

b)  - 
 $\rightarrow \frac{3}{8} - \frac{1}{8} = \frac{2}{8} = \frac{1}{4}$

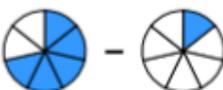
c)  - 
 $\rightarrow \frac{9}{10} - \frac{6}{10} = \frac{3}{10}$

d)  - 
 $\rightarrow \frac{5}{9} - \frac{3}{9} = \frac{2}{9}$

③ a)  - 
 $\rightarrow \frac{8}{9} - \frac{1}{9} = \frac{7}{9}$

b)  - 
 $\rightarrow \frac{4}{7} - \frac{3}{7} = \frac{1}{7}$

c)  - 
 $\rightarrow \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

d)  - 
 $\rightarrow \frac{5}{7} - \frac{1}{7} = \frac{4}{7}$

Brüche kürzen und erweitern 1

Rechne aus und notiere die fehlenden Zahlen

① a) $\frac{5}{45} = \frac{\quad}{9}$ b) $\frac{40}{62} = \frac{20}{\quad}$ c) $\frac{5}{70} = \frac{\quad}{14}$ d) $\frac{1}{37} = \frac{2}{\quad}$

e) $\frac{3}{30} = \frac{\quad}{10}$ f) $\frac{62}{72} = \frac{31}{\quad}$ g) $\frac{30}{90} = \frac{\quad}{3}$ h) $\frac{6}{47} = \frac{12}{\quad}$

② a) $\frac{90}{94} = \frac{\quad}{47}$ b) $\frac{24}{52} = \frac{6}{\quad}$ c) $\frac{36}{66} = \frac{\quad}{11}$ d) $\frac{30}{93} = \frac{10}{\quad}$

e) $\frac{33}{54} = \frac{\quad}{18}$ f) $\frac{12}{76} = \frac{3}{\quad}$ g) $\frac{46}{82} = \frac{\quad}{41}$ h) $\frac{13}{23} = \frac{26}{\quad}$

③ a) $\frac{12}{94} = \frac{\quad}{47}$ b) $\frac{2}{28} = \frac{1}{\quad}$ c) $\frac{8}{70} = \frac{\quad}{35}$ d) $\frac{20}{95} = \frac{4}{\quad}$

e) $\frac{33}{72} = \frac{\quad}{24}$ f) $\frac{30}{56} = \frac{15}{\quad}$ g) $\frac{66}{78} = \frac{\quad}{13}$ h) $\frac{80}{92} = \frac{20}{\quad}$

④ a) $\frac{74}{84} = \frac{\quad}{42}$ b) $\frac{36}{84} = \frac{3}{\quad}$ c) $\frac{22}{50} = \frac{\quad}{25}$ d) $\frac{7}{35} = \frac{1}{\quad}$

e) $\frac{34}{72} = \frac{\quad}{36}$ f) $\frac{5}{12} = \frac{25}{\quad}$ g) $\frac{36}{63} = \frac{\quad}{7}$ h) $\frac{11}{20} = \frac{44}{\quad}$

⑤ a) $\frac{57}{69} = \frac{\quad}{23}$ b) $\frac{15}{25} = \frac{3}{\quad}$ c) $\frac{31}{46} = \frac{\quad}{92}$ d) $\frac{63}{84} = \frac{3}{\quad}$

e) $\frac{20}{27} = \frac{\quad}{81}$ f) $\frac{84}{86} = \frac{42}{\quad}$ g) $\frac{20}{40} = \frac{\quad}{2}$ h) $\frac{11}{18} = \frac{22}{\quad}$

Unechte Brüche in gemischte Zahlen 2

Wandle die unechten Brüche in gemischte Zahlen um

① a) $\frac{48}{35} = \frac{35}{35} + \frac{13}{35} = 1 \frac{13}{35}$

b) $\frac{25}{4} = \frac{24}{4} + \frac{1}{4} = 6 \frac{1}{4}$

c) $\frac{33}{25} = \frac{25}{25} + \frac{8}{25} = 1 \frac{8}{25}$

d) $\frac{24}{11} = \frac{22}{11} + \frac{2}{11} = 2 \frac{2}{11}$

② a) $\frac{19}{15} = \frac{15}{15} + \frac{4}{15} = 1 \frac{4}{15}$

b) $\frac{41}{5} = \frac{40}{5} + \frac{1}{5} = 8 \frac{1}{5}$

c) $\frac{49}{36} = \frac{36}{36} + \frac{13}{36} = 1 \frac{13}{36}$

d) $\frac{14}{3} = \frac{12}{3} + \frac{2}{3} = 4 \frac{2}{3}$

③ a) $\frac{19}{13} = \frac{13}{13} + \frac{6}{13} = 1 \frac{6}{13}$

b) $\frac{43}{10} = \frac{40}{10} + \frac{3}{10} = 4 \frac{3}{10}$

c) $\frac{48}{17} = \frac{34}{17} + \frac{14}{17} = 2 \frac{14}{17}$

d) $\frac{50}{47} = \frac{47}{47} + \frac{3}{47} = 1 \frac{3}{47}$

④ a) $\frac{31}{6} = \frac{30}{6} + \frac{1}{6} = 5 \frac{1}{6}$

b) $\frac{21}{16} = \frac{16}{16} + \frac{5}{16} = 1 \frac{5}{16}$

c) $\frac{36}{5} = \frac{35}{5} + \frac{1}{5} = 7 \frac{1}{5}$

d) $\frac{40}{23} = \frac{23}{23} + \frac{17}{23} = 1 \frac{17}{23}$

⑤ a) $\frac{39}{17} = \frac{34}{17} + \frac{5}{17} = 2 \frac{5}{17}$

b) $\frac{13}{10} = \frac{10}{10} + \frac{3}{10} = 1 \frac{3}{10}$

c) $\frac{37}{18} = \frac{36}{18} + \frac{1}{18} = 2 \frac{1}{18}$

d) $\frac{29}{3} = \frac{27}{3} + \frac{2}{3} = 9 \frac{2}{3}$

Brüche in Dezimalzahlen umwandeln 1

Wandle die Brüche in Dezimalzahlen um

① a) $\frac{3}{10} =$

b) $\frac{93}{1000} =$

c) $\frac{7}{10} =$

d) $\frac{177}{1000} =$

e) $\frac{71}{100} =$

f) $\frac{291}{1000} =$

② a) $\frac{61}{100} =$

b) $\frac{9}{10} =$

c) $\frac{127}{1000} =$

d) $\frac{77}{100} =$

e) $\frac{1}{10} =$

f) $\frac{869}{1000} =$

③ a) $\frac{43}{100} =$

b) $\frac{1}{1000} =$

c) $\frac{81}{100} =$

d) $\frac{153}{1000} =$

e) $\frac{41}{100} =$

f) $\frac{413}{1000} =$

④ a) $\frac{99}{100} =$

b) $\frac{753}{1000} =$

c) $\frac{3}{100} =$

d) $\frac{639}{1000} =$

e) $\frac{63}{100} =$

f) $\frac{271}{1000} =$

⑤ a) $\frac{67}{100} =$

b) $\frac{61}{1000} =$

c) $\frac{49}{100} =$

d) $\frac{621}{1000} =$

e) $\frac{93}{100} =$

f) $\frac{487}{1000} =$

Addition 1

Addiere die Brüche und wandle in gemischte Zahlen um, falls möglich

① a) $\frac{19}{39} + \frac{9}{13} =$

b) $\frac{2}{3} + \frac{26}{33} =$

c) $\frac{1}{2} + \frac{1}{27} =$

d) $\frac{4}{7} + \frac{7}{8} =$

② a) $\frac{29}{38} + \frac{13}{19} =$

b) $\frac{3}{19} + \frac{17}{38} =$

c) $\frac{7}{16} + \frac{11}{32} =$

d) $\frac{21}{44} + \frac{6}{11} =$

③ a) $\frac{11}{30} + \frac{3}{4} =$

b) $\frac{5}{17} + \frac{23}{34} =$

c) $\frac{3}{34} + \frac{7}{17} =$

d) $\frac{4}{5} + \frac{6}{25} =$

④ a) $\frac{11}{36} + \frac{1}{6} =$

b) $\frac{15}{19} + \frac{3}{38} =$

c) $\frac{1}{3} + \frac{9}{11} =$

d) $\frac{8}{45} + \frac{2}{9} =$

⑤ a) $\frac{5}{19} + \frac{23}{38} =$

b) $\frac{25}{28} + \frac{1}{2} =$

c) $\frac{1}{9} + \frac{5}{36} =$

d) $\frac{10}{13} + \frac{4}{39} =$

Subtraktion 4

Subtrahiere die Brüche und wandle in gemischte Zahlen um...

$$\textcircled{1} \quad \text{a) } \frac{8}{15} - \frac{1}{6} = \frac{16}{30} - \frac{5}{30} = \frac{11}{30}$$

$$\text{b) } \frac{17}{21} - \frac{3}{7} = \frac{17}{21} - \frac{9}{21} = \frac{8}{21}$$

$$\text{c) } \frac{19}{45} - \frac{2}{9} = \frac{19}{45} - \frac{10}{45} = \frac{9}{45} = \frac{1}{5}$$

$$\text{d) } \frac{25}{44} - \frac{5}{22} = \frac{25}{44} - \frac{10}{44} = \frac{15}{44}$$

$$\textcircled{2} \quad \text{a) } \frac{1}{2} - \frac{9}{20} = \frac{10}{20} - \frac{9}{20} = \frac{1}{20}$$

$$\text{b) } \frac{2}{3} - \frac{2}{33} = \frac{22}{33} - \frac{2}{33} = \frac{20}{33}$$

$$\text{c) } \frac{8}{45} - \frac{1}{15} = \frac{8}{45} - \frac{3}{45} = \frac{5}{45} = \frac{1}{9}$$

$$\text{d) } \frac{8}{11} - \frac{15}{44} = \frac{32}{44} - \frac{15}{44} = \frac{17}{44}$$

$$\textcircled{3} \quad \text{a) } \frac{3}{4} - \frac{7}{44} = \frac{33}{44} - \frac{7}{44} = \frac{26}{44} = \frac{13}{22}$$

$$\text{b) } \frac{7}{8} - \frac{3}{16} = \frac{14}{16} - \frac{3}{16} = \frac{11}{16}$$

$$\text{c) } \frac{11}{13} - \frac{1}{26} = \frac{22}{26} - \frac{1}{26} = \frac{21}{26}$$

$$\text{d) } \frac{14}{19} - \frac{27}{38} = \frac{28}{38} - \frac{27}{38} = \frac{1}{38}$$

$$\textcircled{4} \quad \text{a) } \frac{1}{5} - \frac{3}{40} = \frac{8}{40} - \frac{3}{40} = \frac{5}{40} = \frac{1}{8}$$

$$\text{b) } \frac{29}{38} - \frac{11}{19} = \frac{29}{38} - \frac{22}{38} = \frac{7}{38}$$

$$\text{c) } \frac{20}{21} - \frac{5}{42} = \frac{40}{42} - \frac{5}{42} = \frac{35}{42} = \frac{5}{6}$$

$$\text{d) } \frac{4}{5} - \frac{7}{25} = \frac{20}{25} - \frac{7}{25} = \frac{13}{25}$$

$$\textcircled{5} \quad \text{a) } \frac{17}{22} - \frac{6}{11} = \frac{17}{22} - \frac{12}{22} = \frac{5}{22}$$

$$\text{b) } \frac{11}{15} - \frac{2}{5} = \frac{11}{15} - \frac{6}{15} = \frac{5}{15} = \frac{1}{3}$$

$$\text{c) } \frac{5}{6} - \frac{17}{24} = \frac{20}{24} - \frac{17}{24} = \frac{3}{24} = \frac{1}{8}$$

$$\text{d) } \frac{15}{17} - \frac{19}{34} = \frac{30}{34} - \frac{19}{34} = \frac{11}{34}$$

Multiplikation 5

Multipliziere die Brüche und kürze dabei so viel wie möglich

① a) $\frac{1}{21} \cdot \frac{3}{7} =$

b) $\frac{6}{13} \cdot \frac{1}{2} =$

c) $\frac{3}{4} \cdot \frac{4}{23} =$

d) $\frac{17}{24} \cdot \frac{2}{3} =$

② a) $\frac{5}{6} \cdot \frac{19}{25} =$

b) $\frac{6}{11} \cdot \frac{11}{14} =$

c) $\frac{12}{13} \cdot \frac{5}{9} =$

d) $\frac{1}{4} \cdot \frac{4}{17} =$

③ a) $\frac{16}{19} \cdot \frac{3}{4} =$

b) $\frac{5}{14} \cdot \frac{2}{3} =$

c) $\frac{3}{5} \cdot \frac{19}{27} =$

d) $\frac{2}{15} \cdot \frac{6}{7} =$

④ a) $\frac{4}{13} \cdot \frac{1}{6} =$

b) $\frac{20}{27} \cdot \frac{4}{5} =$

c) $\frac{1}{4} \cdot \frac{2}{19} =$

d) $\frac{7}{12} \cdot \frac{3}{10} =$

⑤ a) $\frac{16}{39} \cdot \frac{1}{2} =$

b) $\frac{4}{11} \cdot \frac{11}{12} =$

c) $\frac{1}{3} \cdot \frac{21}{29} =$

d) $\frac{5}{7} \cdot \frac{5}{6} =$

Division 6

Dividiere die Brüche und wandle in gemischte Brüche um, falls möglich

① a) $\frac{1}{33} : \frac{2}{11} = \frac{1}{33} \cdot \frac{11}{2} = \frac{1 \cdot 11}{3 \cdot 2} = \frac{1}{6}$ b) $\frac{3}{16} : \frac{3}{10} = \frac{3}{16} \cdot \frac{10}{3} = \frac{1 \cdot 5}{8 \cdot 1} = \frac{5}{8}$

c) $\frac{3}{4} : \frac{18}{29} = \frac{3}{4} \cdot \frac{29}{18} = \frac{1 \cdot 29}{4 \cdot 6} = 1 \frac{5}{24}$ d) $\frac{1}{2} : \frac{1}{6} = \frac{1}{2} \cdot \frac{6}{1} = \frac{1 \cdot 3}{1 \cdot 1} = 3$

② a) $\frac{1}{3} : \frac{13}{24} = \frac{1}{3} \cdot \frac{24}{13} = \frac{1 \cdot 8}{1 \cdot 13} = \frac{8}{13}$ b) $\frac{6}{17} : \frac{2}{9} = \frac{6}{17} \cdot \frac{9}{2} = \frac{3 \cdot 9}{17 \cdot 1} = 1 \frac{10}{17}$

c) $\frac{3}{26} : \frac{3}{32} = \frac{3}{26} \cdot \frac{32}{3} = \frac{1 \cdot 16}{13 \cdot 1} = 1 \frac{3}{13}$ d) $\frac{1}{7} : \frac{5}{14} = \frac{1}{7} \cdot \frac{14}{5} = \frac{1 \cdot 2}{1 \cdot 5} = \frac{2}{5}$

③ a) $\frac{2}{11} : \frac{8}{19} = \frac{2}{11} \cdot \frac{19}{8} = \frac{1 \cdot 19}{11 \cdot 4} = \frac{19}{44}$ b) $\frac{11}{16} : \frac{1}{8} = \frac{11}{16} \cdot \frac{8}{1} = \frac{11 \cdot 1}{2 \cdot 1} = 5 \frac{1}{2}$

c) $\frac{6}{41} : \frac{2}{15} = \frac{6}{41} \cdot \frac{15}{2} = \frac{3 \cdot 15}{41 \cdot 1} = 1 \frac{4}{41}$ d) $\frac{1}{18} : \frac{3}{40} = \frac{1}{18} \cdot \frac{40}{3} = \frac{1 \cdot 20}{9 \cdot 3} = \frac{20}{27}$

④ a) $\frac{4}{7} : \frac{4}{13} = \frac{4}{7} \cdot \frac{13}{4} = \frac{1 \cdot 13}{7 \cdot 1} = 1 \frac{6}{7}$ b) $\frac{7}{9} : \frac{7}{9} = \frac{7}{9} \cdot \frac{9}{7} = \frac{1 \cdot 1}{1 \cdot 1} = 1$

c) $\frac{3}{31} : \frac{3}{11} = \frac{3}{31} \cdot \frac{11}{3} = \frac{1 \cdot 11}{31 \cdot 1} = \frac{11}{31}$ d) $\frac{1}{3} : \frac{5}{27} = \frac{1}{3} \cdot \frac{27}{5} = \frac{1 \cdot 9}{1 \cdot 5} = 1 \frac{4}{5}$

⑤ a) $\frac{15}{44} : \frac{1}{4} = \frac{15}{44} \cdot \frac{4}{1} = \frac{15 \cdot 1}{11 \cdot 1} = 1 \frac{4}{11}$ b) $\frac{1}{2} : \frac{19}{36} = \frac{1}{2} \cdot \frac{36}{19} = \frac{1 \cdot 18}{1 \cdot 19} = \frac{18}{19}$

c) $\frac{1}{10} : \frac{3}{25} = \frac{1}{10} \cdot \frac{25}{3} = \frac{1 \cdot 5}{2 \cdot 3} = \frac{5}{6}$ d) $\frac{4}{5} : \frac{8}{17} = \frac{4}{5} \cdot \frac{17}{8} = \frac{1 \cdot 17}{5 \cdot 2} = 1 \frac{7}{10}$

Textaufgaben 3

Schreibe Lösungsweg und Ergebnis auf

1. Für ein Mixgetränk werden $1\frac{3}{4}$ l Orangensaft, $\frac{4}{5}$ l Ananassaft und $\frac{3}{20}$ l Zitronensaft gemischt.

Wie viel Gläser zu $\frac{3}{10}$ l Inhalt kann man mit dem Mixgetränk füllen?

$$\text{Gesamtmenge: } 1\frac{3}{4} + \frac{4}{5} + \frac{3}{20} = \frac{7}{4} + \frac{4}{5} + \frac{3}{20} = \frac{35}{20} + \frac{16}{20} + \frac{3}{20} = \frac{54}{20} = \frac{27}{10}$$

$$\text{Anzahl der Gläser: } \frac{27}{10} : \frac{3}{10} = \frac{27 \cdot 10}{10 \cdot 3} = 9$$

Man kann 9 Gläser mit dem Mixgetränk füllen.

2. Ein Läufer atmet bei einem Atemzug ungefähr $\frac{3}{4}$ l Luft ein. Ungefähr $\frac{1}{5}$ davon ist Sauerstoff.

Wie viel Liter Sauerstoff atmet er mit 50 Atemzügen ein?

$$\text{Anteil des Sauerstoffs an einem Atemzug: } \frac{3}{4} \cdot \frac{1}{5} = \frac{3 \cdot 1}{4 \cdot 5} = \frac{3}{20}$$

$$\text{Anteil des Sauerstoffs an 50 Atemzügen: } \frac{3}{20} \cdot 50 = \frac{3 \cdot 50}{20} = \frac{15}{2} = 7,5$$

Er atmet 7,5 Liter Sauerstoff mit 50 Atemzügen ein.

3. 10 Liter Heizöl wiegen zirka $8\frac{3}{4}$ kg. Wie viel Liter hat ein Tankzug mit $15\frac{1}{4}$ t Eigengewicht geladen, wenn er insgesamt $25\frac{3}{4}$ t wiegt?

$$\text{Zuladung: } 25\frac{3}{4} - 15\frac{1}{4} = 10\frac{2}{4} = 10\frac{1}{2} \text{ t} \quad 10\frac{1}{2} \text{ t} = 10500 \text{ kg} \quad 8\frac{3}{4} \text{ kg} = 8,75 \text{ kg}$$

10 l wiegen 8,75 kg Anzahl der geladenen Liter:

$$10500 : 8\frac{3}{4} \cdot 10 = 10500 : \frac{35}{4} \cdot 10 = \frac{10500 \cdot 4}{35} \cdot 10 = 300 \cdot 4 \cdot 10 = 12000 \text{ l}$$

Der Tankzug hat 12000 Liter Heizöl geladen.

4. Ein Schwimmbecken, das 780 m³ Wasser fasst, kann in $4\frac{1}{3}$ Stunden gefüllt werden. Der Ablauf des gesamten Wassers dauert $3\frac{1}{3}$ Stunden. Berechne, wie viel m³ Wasser pro Stunde zufließen und wie viel abfließen.

$$780 \text{ m}^3 : 4\frac{1}{3} = 780 : \frac{13}{3} = \frac{780 \cdot 3}{13} = 180 \text{ m}^3 \text{ fließen pro Stunde zu.}$$

$$780 \text{ m}^3 : 3\frac{1}{3} = 780 : \frac{10}{3} = \frac{780 \cdot 3}{10} = 234 \text{ m}^3 \text{ fließen pro Stunde ab.}$$