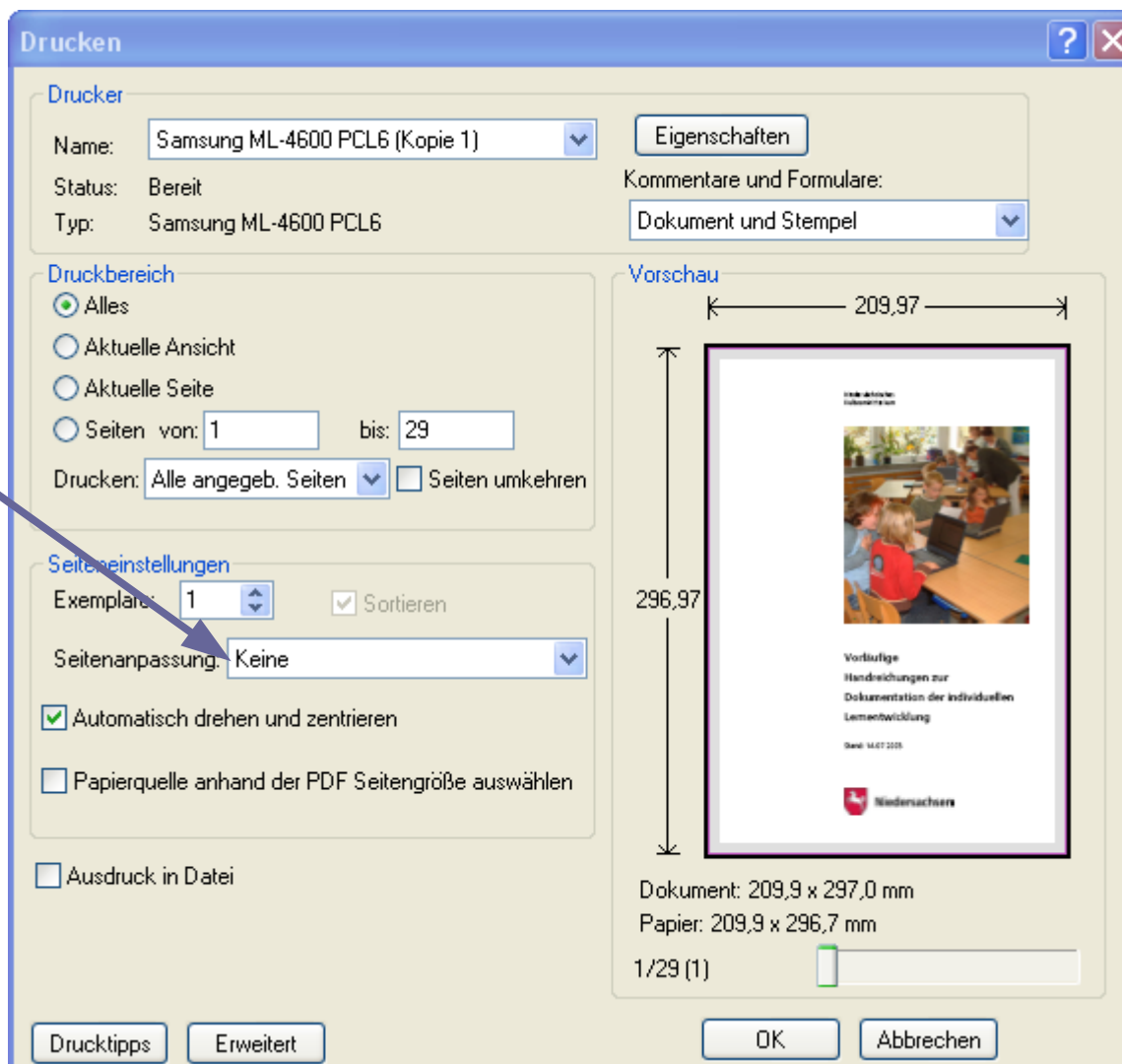


Übungsmaterialien zur Bruchrechnung

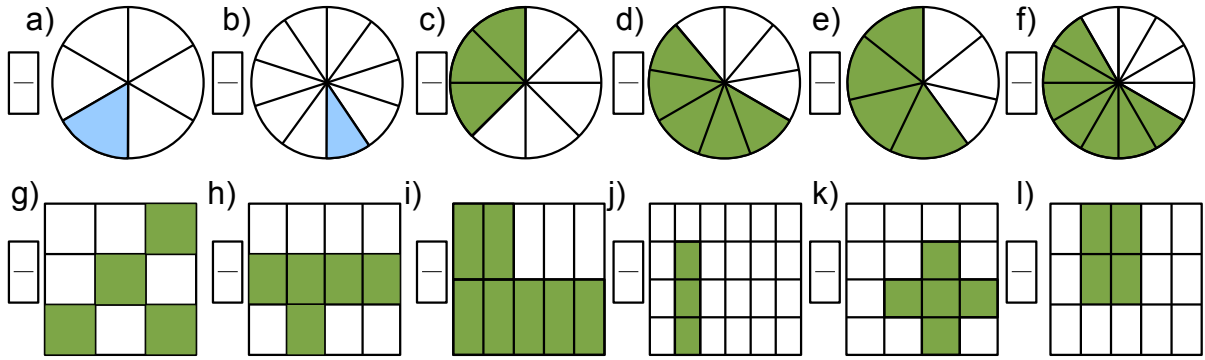
Die Materialien sind einsetzbar in Klasse 6. Unterschiedliche Aspekte des Bruchbegriffs werden angesprochen.

Einige Seiten müssen im Maßstab 1:1 ausgedruckt werden. Daher ist eine Einstellung des Acrobat Readers zu verändern. Wenn man im Reader versucht eine Datei auszudrucken, so öffnet sich ein Druckmenü. Hier gibt es eine Einstellung „Druckanpassung“. Diese muss auf „keine“ verändert werden. Voreingestellt ist eine Druckanpassung, die alle Seiten auf 92 Prozent verkleinert.

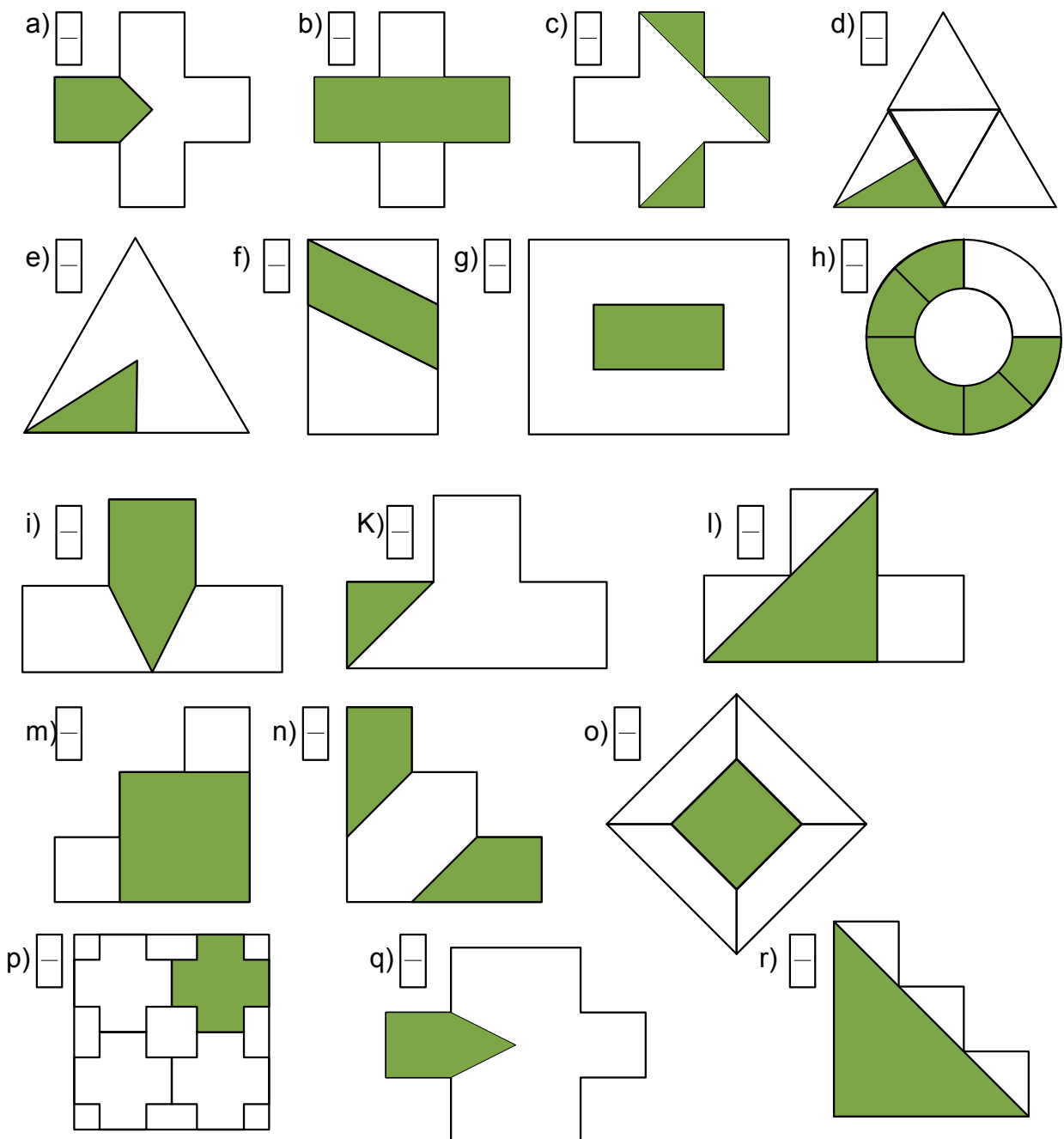


Bruchteile

1 Welcher Bruchteil ist gefärbt?

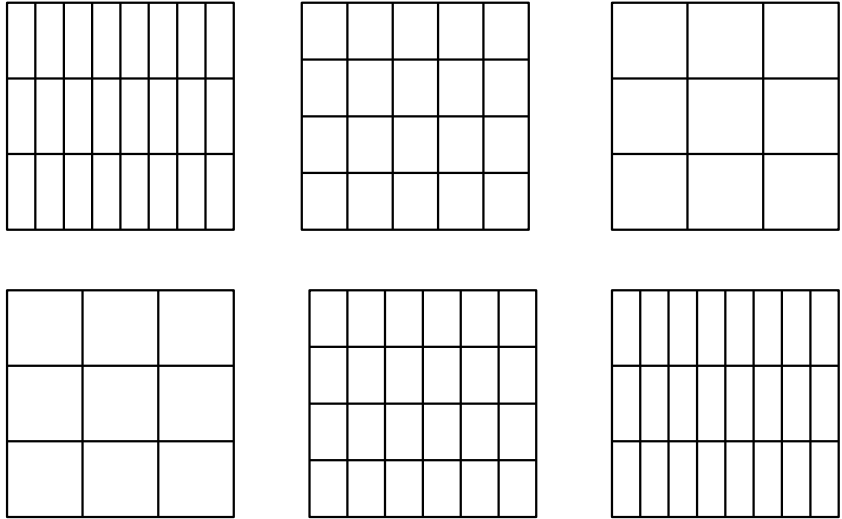


2 Unterteile die Figur vollständig und bestimme den Bruch, den der gefärbte Anteil darstellt.

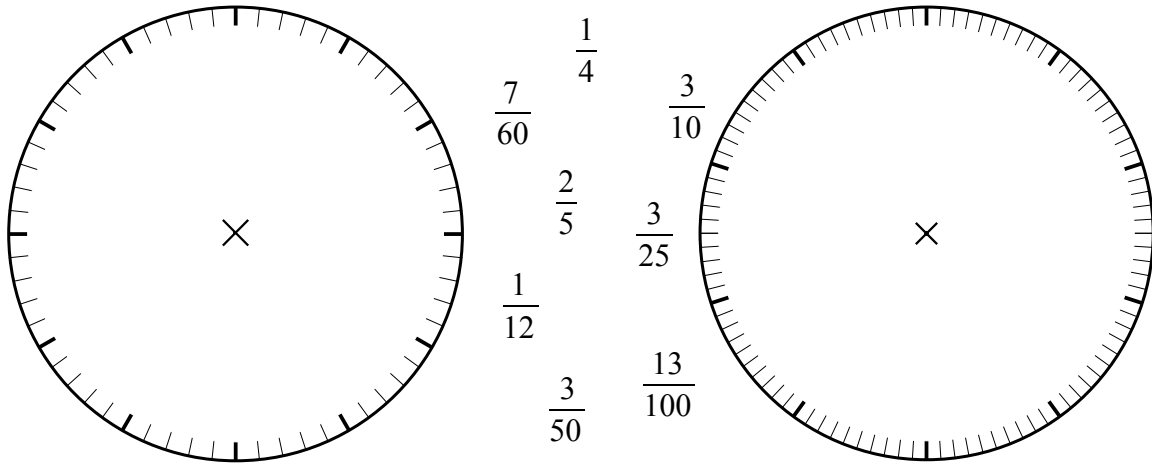


1 Stelle in den Rechtecken die folgenden Brüche farbig dar. Beschrifte die Zeichnungen.

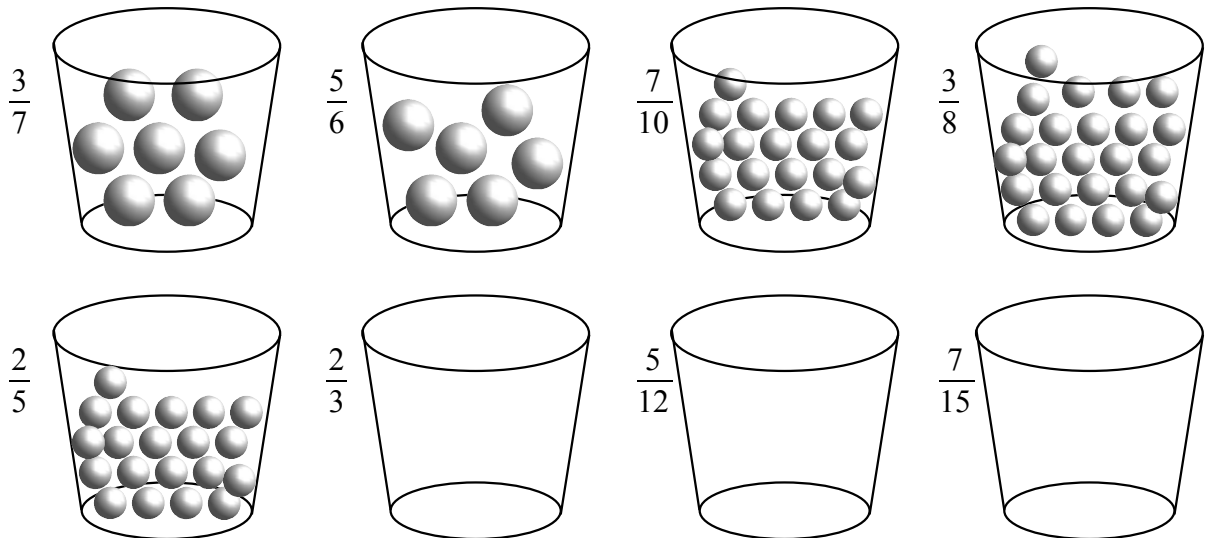
- | | | |
|---------------|----------------|---------------|
| $\frac{3}{8}$ | $\frac{5}{12}$ | $\frac{5}{6}$ |
| $\frac{1}{4}$ | $\frac{7}{10}$ | $\frac{2}{3}$ |
| $\frac{5}{9}$ | | |



2 Stelle mithilfe der Kreiseinteilungen die folgenden Brüche dar und beschrifte sie. Beachte: Mehrere Brüche müssen in einem Kreis dargestellt werden.



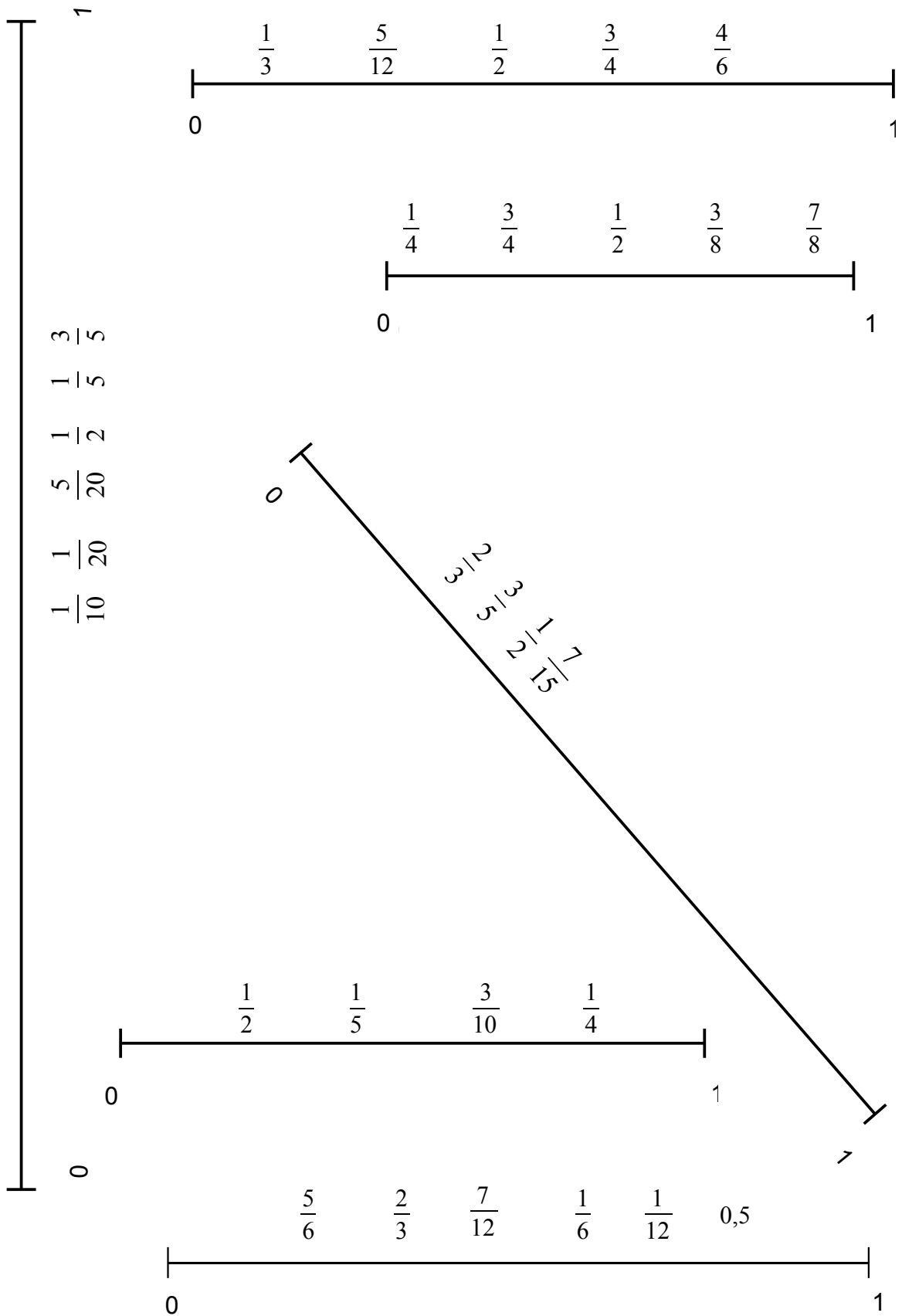
3 Färbe einen Teil der Kugeln rot, so dass der Bruch durch den Anteil der rot gefärbten Kugeln dargestellt wird.



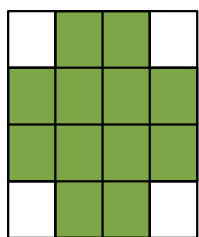
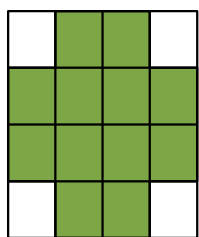
Brüche darstellen: Zahlenstrahl

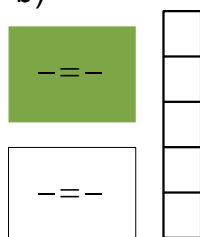
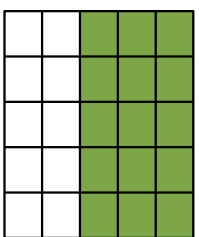
4

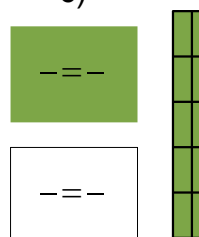
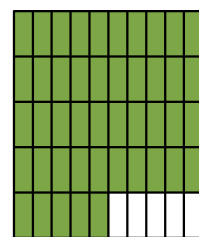
Ordne die folgenden Brüche durch Messen richtig an.

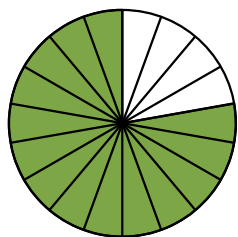
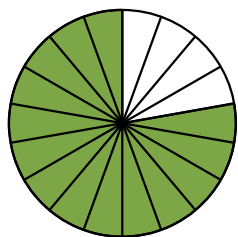


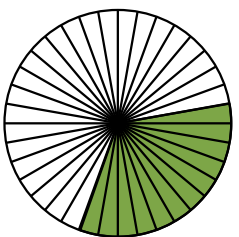
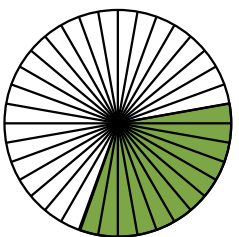
1 Suche mindestens zwei Möglichkeiten, die den grünen und den weißen Anteil der Figur durch einen Bruch beschreiben.

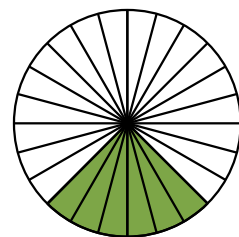
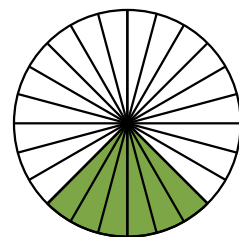
a) $\frac{12}{16} = \frac{4}{16}$  $\frac{12}{16} = \frac{3}{4}$ 

b) $\frac{12}{16} = \frac{3}{4}$  $\frac{12}{16} = \frac{3}{4}$ 

c) $\frac{12}{16} = \frac{3}{4}$  $\frac{12}{16} = \frac{3}{4}$ 

d) $\frac{12}{16} = \frac{3}{4}$  $\frac{12}{16} = \frac{3}{4}$ 

e) $\frac{12}{16} = \frac{3}{4}$  $\frac{12}{16} = \frac{3}{4}$ 

f) $\frac{12}{16} = \frac{3}{4}$  $\frac{12}{16} = \frac{3}{4}$ 

2 Ersetze die Platzhalter

a) $\frac{3}{10} = \frac{\square}{50}$ b) $\frac{7}{8} = \frac{\square}{40}$ c) $\frac{3}{4} = \frac{9}{\square}$ d) $\frac{12}{20} = \frac{\square}{5}$ e) $\frac{7}{14} = \frac{\square}{42}$ f) $\frac{2}{14} = \frac{1}{\square}$

$\frac{1}{4} = \frac{\square}{20}$ $\frac{2}{15} = \frac{\square}{45}$ $\frac{7}{25} = \frac{21}{\square}$ $\frac{15}{100} = \frac{\square}{20}$ $\frac{3}{\square} = \frac{9}{15}$ $\frac{3}{9} = \frac{1}{\square}$

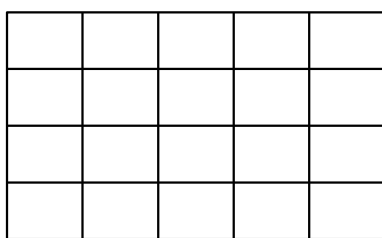
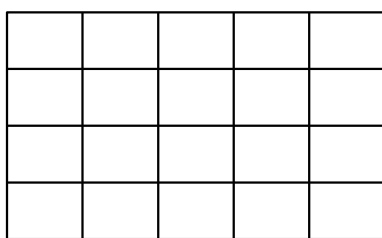
$\frac{3}{12} = \frac{\square}{36}$ $\frac{2}{7} = \frac{\square}{21}$ $\frac{2}{9} = \frac{8}{\square}$ $\frac{15}{25} = \frac{3}{\square}$ $\frac{8}{\square} = \frac{16}{48}$ $\frac{6}{20} = \frac{\square}{10}$

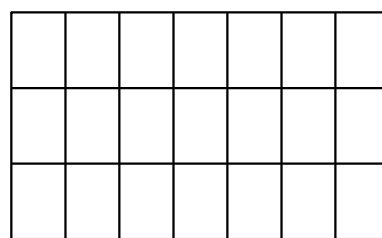
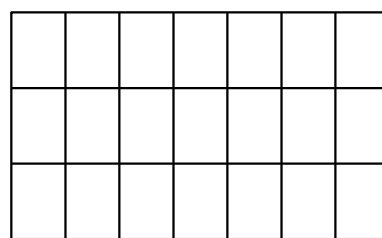
3 Kürze, soweit wie möglich.

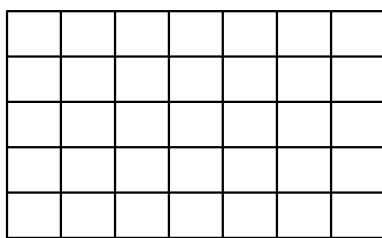
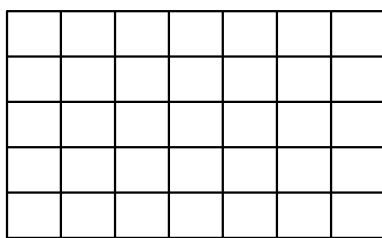
a) $\frac{12}{60} = \frac{\square}{\square}$ b) $\frac{15}{75} = \frac{\square}{\square}$ c) $\frac{24}{40} = \frac{\square}{\square}$ d) $\frac{8}{36} = \frac{\square}{\square}$ e) $\frac{18}{24} = \frac{\square}{\square}$ f) $\frac{17}{51} = \frac{\square}{\square}$

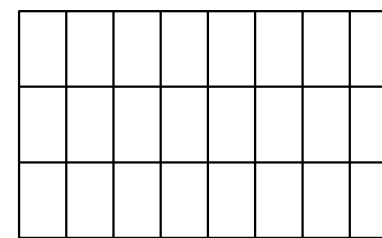
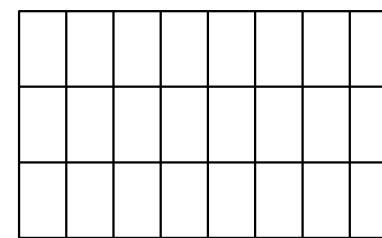
$\frac{14}{30} = \frac{\square}{\square}$ $\frac{4}{32} = \frac{\square}{\square}$ $\frac{12}{20} = \frac{\square}{\square}$ $\frac{21}{63} = \frac{\square}{\square}$ $\frac{35}{140} = \frac{\square}{\square}$ $\frac{32}{240} = \frac{\square}{\square}$

4 Stelle beide Brüche in einem gemeinsamen Rechteck dar. Färbe den ersten Bruch rot, den zweiten grün.

$\frac{1}{4}$  $\frac{2}{5}$ 

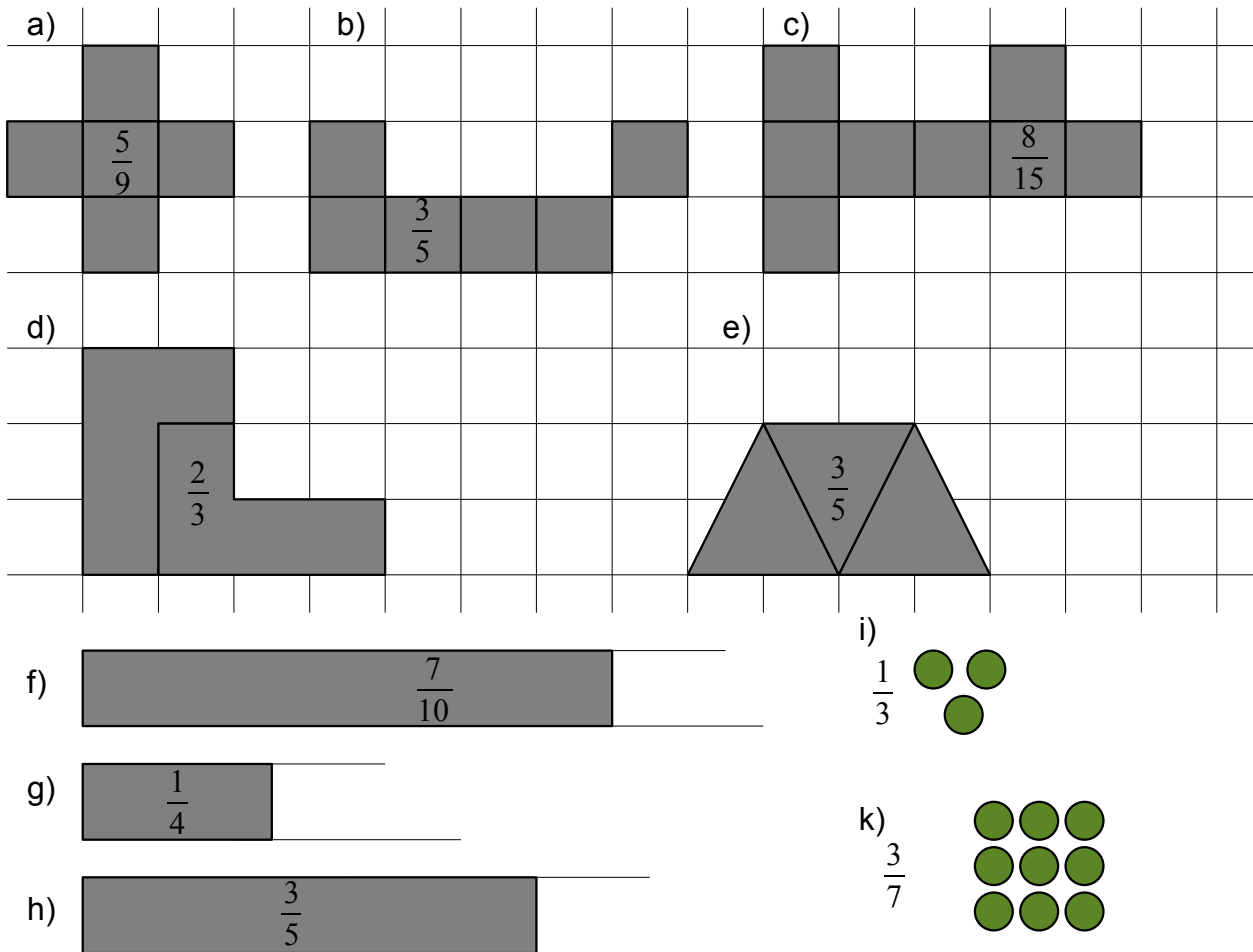
$\frac{2}{7}$  $\frac{1}{3}$ 

$\frac{3}{5}$  $\frac{1}{7}$ 

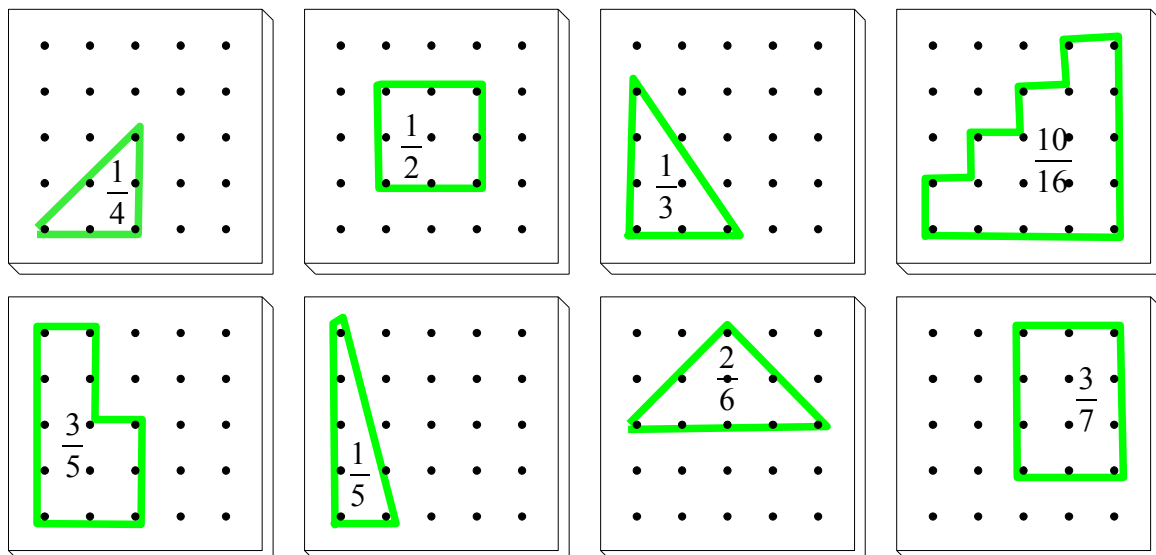
$\frac{3}{8}$  $\frac{1}{3}$ 

Das Ganze bestimmen

1 Dargestellt ist jeweils ein Teil des Ganzen. Zeichne das Ganze.



2 Dargestellt ist jeweils ein Teil des Ganzen. Stelle mit rot das Ganze dar.



3 Berechne das Ganze.

$\frac{3}{4}$ von sind 240 m

$\frac{3}{5}$ von sind 600 g

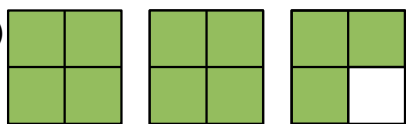
$\frac{3}{10}$ von sind 30 l

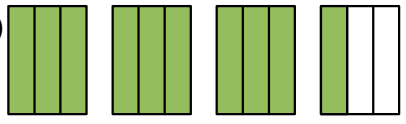
$\frac{5}{8}$ von sind 250 dm³

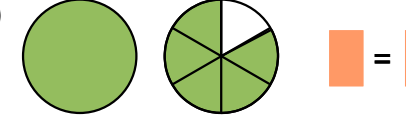
$\frac{7}{10}$ von sind 0,7 l


$\frac{1}{6}$ von sind 20 min

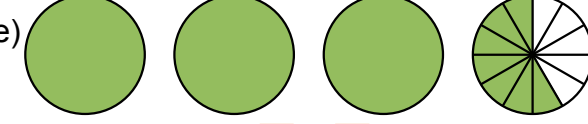
1 Welche Brüche werden hier dargestellt? Schreibe die Ergebnisse jeweils als Bruch und als gemischte Zahl.

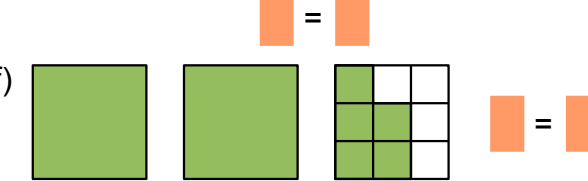
a)  $2 \frac{\square}{\square} = \frac{\square}{\square}$

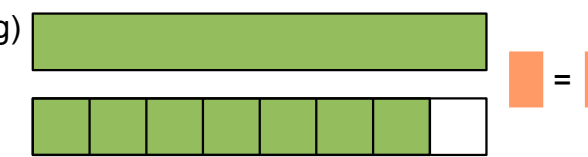
b)  $\square = \frac{\square}{\square}$

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

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

e)  $\square = \frac{\square}{\square}$

f)  $\square = \frac{\square}{\square}$

g)  $\square = \frac{\square}{\square}$

2 Schreibe als Bruch.

a) $2 \frac{1}{3} = \frac{\square}{\square}$

b) $1 \frac{7}{9} = \frac{\square}{\square}$

c) $3 \frac{1}{4} = \frac{\square}{\square}$

d) $4 \frac{1}{8} = \frac{\square}{\square}$

$1 \frac{5}{6} = \frac{\square}{\square}$

$2 \frac{4}{5} = \frac{\square}{\square}$

$2 \frac{1}{3} = \frac{\square}{\square}$

$2 \frac{7}{10} = \frac{\square}{\square}$

3 Schreibe als gemischte Zahl.

a) $\frac{5}{6} = \frac{\square}{\square}$

b) $\frac{4}{3} = \frac{\square}{\square}$

c) $\frac{12}{5} = \frac{\square}{\square}$

d) $\frac{19}{10} = \frac{\square}{\square}$

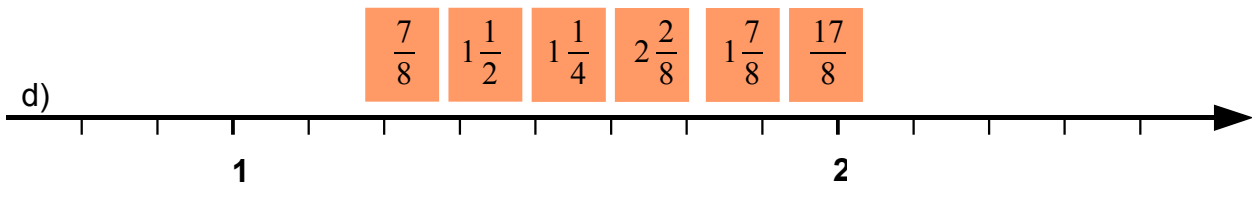
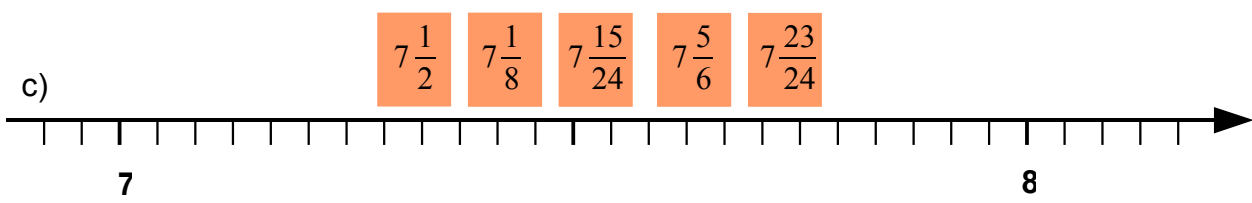
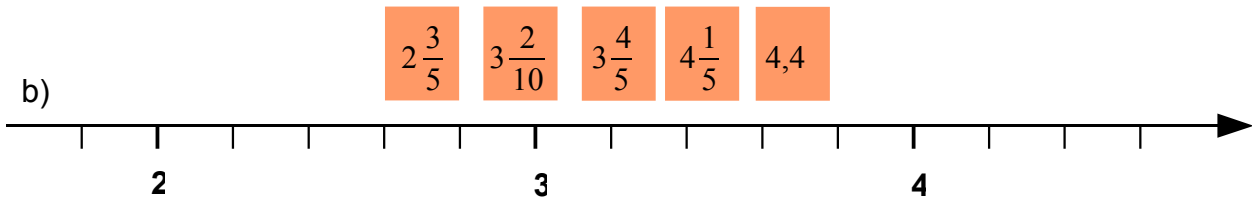
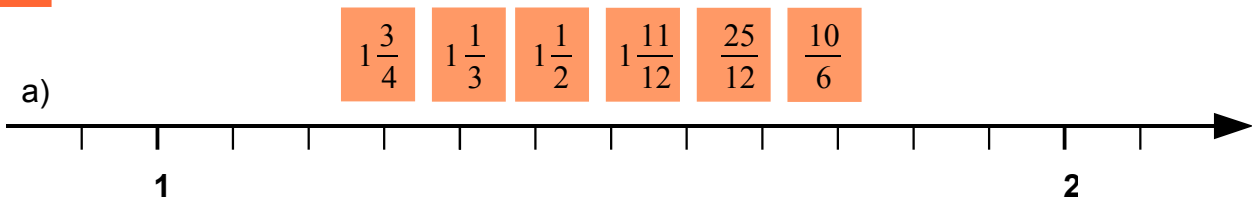
$\frac{7}{3} = \frac{\square}{\square}$

$\frac{7}{2} = \frac{\square}{\square}$

$\frac{17}{6} = \frac{\square}{\square}$

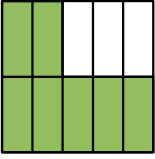
$\frac{21}{8} = \frac{\square}{\square}$

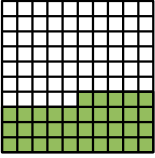
4 Ordne die Brüche den Stellen auf dem Zahlenstrahl zu.

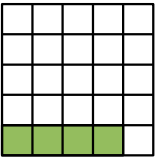



Brüche und Dezimalzahlen


1 Welcher Bruchteil ist gefärbt? Gib das Ergebnis als Bruch und als Dezimalzahl an.


a)  $\frac{\quad}{\quad} = 0, \quad$

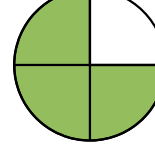
b)  $\frac{\quad}{\quad} = 0, \quad$


c)  $\frac{\quad}{\quad} = 0, \quad$

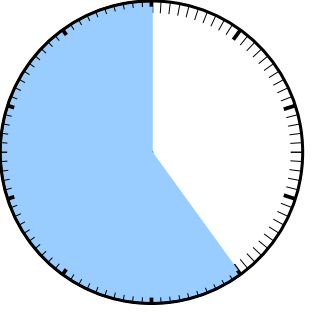
d)  $\frac{\quad}{\quad} = 0, \quad$

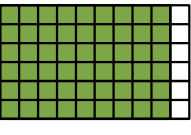
e)  $\frac{\quad}{\quad} = 0, \quad$

f)  $\frac{\quad}{\quad} = 0, \quad$

g)  $\frac{\quad}{\quad} = 0, \quad$

h)  $\frac{\quad}{\quad} = 0, \quad$

i)  $\frac{\quad}{\quad} = 0, \quad$

k)  $\frac{\quad}{\quad} = 0, \quad$

2 Ersetze die Platzhalter.

Dezimalzahl	Stellenwerttafel					Brüche
	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$	
1,21		1	2	1		$1 + \frac{2}{10} + \frac{1}{100}$
0,56						
0,045						
0,201						
0,007						
		3	2		5	
			5	2		
				1	9	
	3		2			
						$10 + 5 + \frac{1}{10} + \frac{3}{100}$
						$\frac{2}{10} + \frac{4}{1000}$
						$25 + \frac{13}{100}$

3 Wandle durch schriftliche Division in eine Dezimalzahl um. Rechne im Heft und trage die Ergebnisse hier ein.

a) $\frac{7}{15} =$ $\frac{2}{3} =$

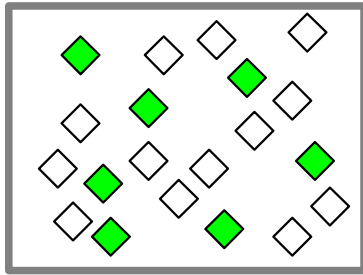
b) $\frac{7}{9} =$ $\frac{3}{11} =$

c) $\frac{5}{12} =$ $\frac{7}{20} =$

d) $\frac{3}{8} =$ $\frac{4}{5} =$

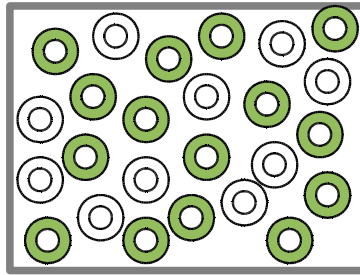
1 Gib den Anteil der gefärbten Flächen jeweils als Bruch und als Prozente an. Schätze zunächst.

geschätzt: _____ %



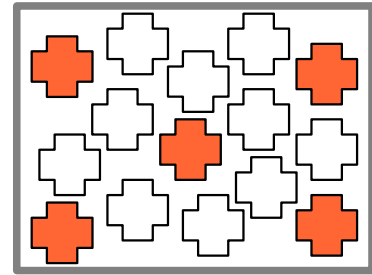
Bruch:
Prozent:

geschätzt: _____ %



Bruch:
Prozent:

geschätzt: _____ %

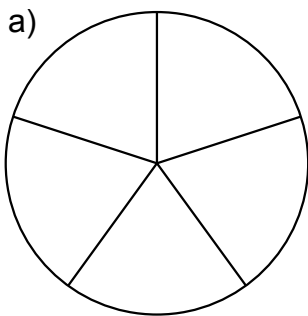


Bruch:
Prozent:

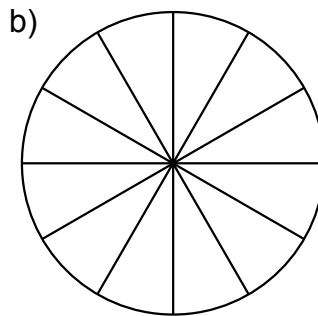
2 Ergänze die Platzhalter.

Prozentsatz	80,00%	40,00%	15,00%	8,00%			
Dezimalbruch	$\frac{80}{100}$				$\frac{\text{orange bar}}{100}$	$\frac{\text{orange bar}}{100}$	$\frac{\text{orange bar}}{100}$
Dezimalzahl	0,80						
gekürzter Bruch	$\frac{4}{5}$				$\frac{7}{10}$	$\frac{7}{20}$	$\frac{6}{25}$

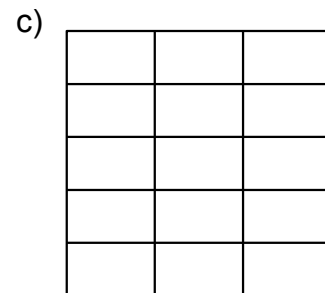
3 Gib den angegebenen Prozentsatz als Bruch an und färbe die Figur ein.



60 % =

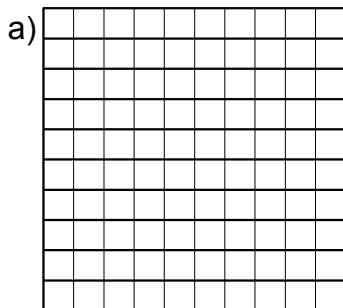


75 % =

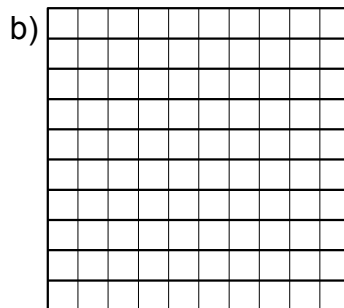


20 % =

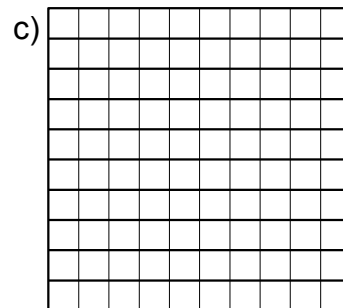
4 Gib den Bruch als Prozentsatz an und färbe die Figur.



$\frac{37}{100} =$



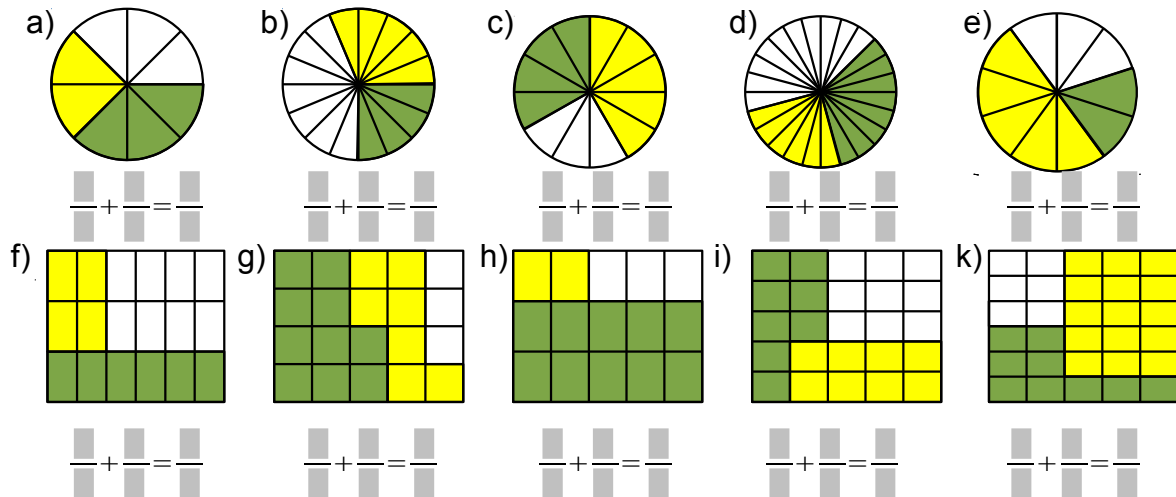
$\frac{12}{25} = \frac{\text{orange bar}}{100} =$



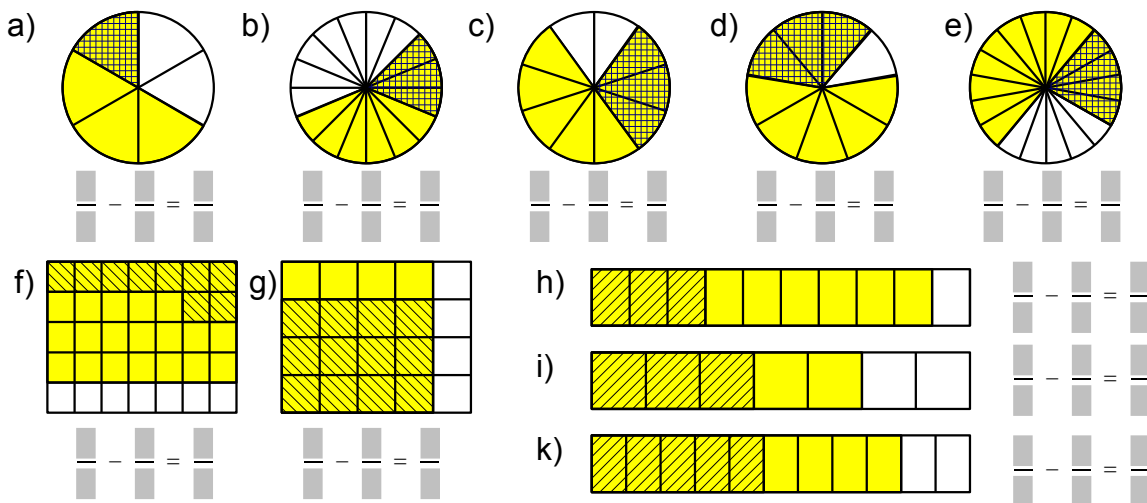
$\frac{9}{20} = \frac{\text{orange bar}}{100} =$

Gleichnamige Brüche addieren und subtrahieren

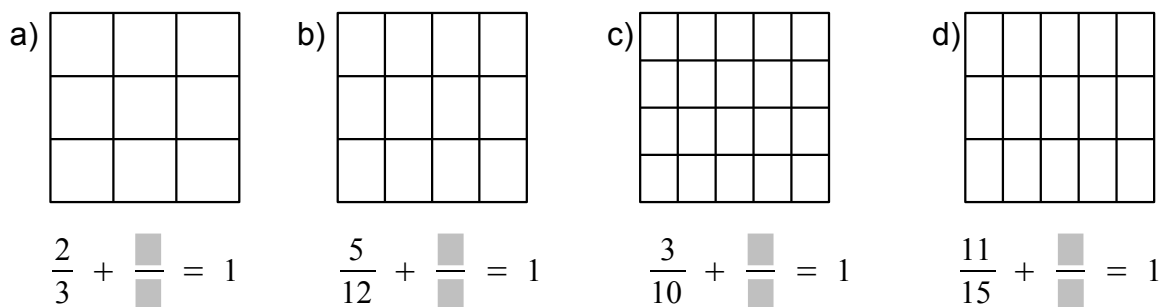
1 Notiere zu jeder Zeichnung die dazugehörige Additionsaufgabe und löse sie.



2 Notiere zu jeder Zeichnung die dazugehörige Subtraktionsaufgabe und löse sie.



3 Ergänze zum Ganzen. Stelle die Aufgaben zeichnerisch dar und ermittle die Lösung. Zeichne den ersten Summanden rot und den zweiten Summanden blau ein.



4 Berechne.

a) $\frac{3}{7} + \frac{2}{7} = \frac{\quad}{\quad}$

$\frac{5}{13} + \frac{6}{13} = \frac{\quad}{\quad}$

$\frac{2}{15} + \frac{7}{15} = \frac{\quad}{\quad}$

b) $\frac{3}{10} + \frac{\quad}{\quad} = \frac{7}{10}$

$\frac{4}{15} + \frac{\quad}{\quad} = \frac{9}{15}$

$\frac{7}{21} + \frac{\quad}{\quad} = \frac{20}{21}$

c) $\frac{7}{9} - \frac{4}{9} = \frac{\quad}{\quad}$

$\frac{13}{18} - \frac{7}{18} = \frac{\quad}{\quad}$

$\frac{8}{7} - \frac{5}{7} = \frac{\quad}{\quad}$

d) $\frac{12}{15} - \frac{\quad}{\quad} = \frac{7}{15}$

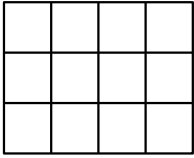
$\frac{9}{20} - \frac{\quad}{\quad} = \frac{4}{20}$

$\frac{15}{16} - \frac{\quad}{\quad} = \frac{3}{16}$

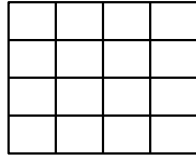
Gleichnamige Brüche addieren und subtrahieren

5 Stelle die Additionsaufgaben jeweils in einem Rechteck dar. (Erster Summand rot, zweiter Summand blau.)

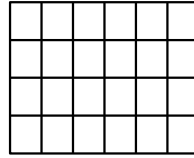
a) $\frac{7}{12} + \frac{4}{12} = \frac{\square}{\square}$



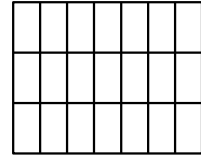
b) $\frac{5}{16} + \frac{7}{16} = \frac{\square}{\square}$



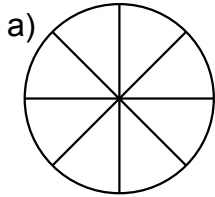
c) $\frac{9}{24} + \frac{3}{24} = \frac{\square}{\square}$



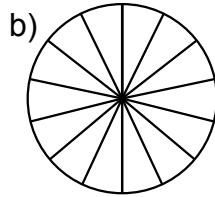
d) $\frac{5}{21} + \frac{9}{21} = \frac{\square}{\square}$



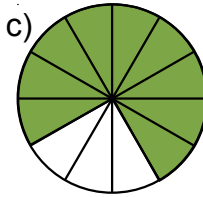
6 Stelle jeweils die Subtraktionsaufgaben dar. Der Subtrahend wird schraffiert.



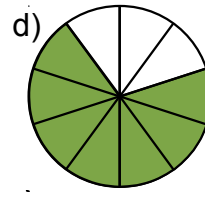
$\frac{7}{8} - \frac{5}{8} = \frac{\square}{\square}$



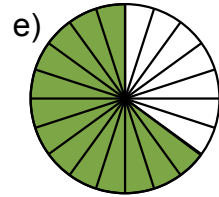
$\frac{5}{14} - \frac{3}{14} = \frac{\square}{\square}$



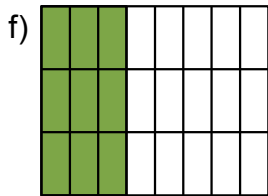
$\frac{\square}{\square} - \frac{5}{12} = \frac{\square}{\square}$



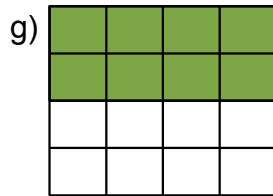
$\frac{\square}{\square} - \frac{3}{10} = \frac{\square}{\square}$



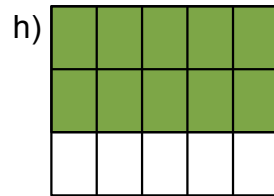
$\frac{\square}{\square} - \frac{7}{20} = \frac{\square}{\square}$



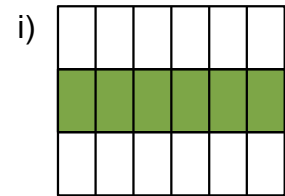
$\frac{\square}{\square} - \frac{5}{24} = \frac{\square}{\square}$



$\frac{\square}{\square} - \frac{3}{16} = \frac{\square}{\square}$



$\frac{\square}{\square} - \frac{7}{15} = \frac{\square}{\square}$



$\frac{\square}{\square} - \frac{3}{18} = \frac{\square}{\square}$

7 Ersetze die Platzhalter. Verwandle die Ergebnisse in gemischte Zahlen.

a) $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$

$\frac{5}{7} + \frac{6}{7} = \frac{\square}{\square} = \square$

$\frac{3}{9} + \frac{7}{9} = \frac{\square}{\square} = \square$

$\frac{7}{10} + \frac{5}{10} = \frac{\square}{\square} = \square$

b) $\frac{5}{8} + \frac{\square}{\square} = \frac{15}{8} = \square$

$\frac{7}{12} + \frac{\square}{\square} = \frac{13}{12} = \square$

$\frac{5}{6} + \frac{\square}{\square} = \frac{10}{6} = \square$

$\frac{4}{11} + \frac{\square}{\square} = \frac{13}{11} = \square$

c) $\frac{6}{7} + \frac{\square}{\square} = \frac{\square}{\square} = 1\frac{5}{7}$

$\frac{3}{4} + \frac{\square}{\square} = \frac{\square}{\square} = 1\frac{1}{4}$

$\frac{9}{14} + \frac{\square}{\square} = \frac{\square}{\square} = 1\frac{3}{14}$

$\frac{5}{12} + \frac{\square}{\square} = \frac{\square}{\square} = 1\frac{1}{12}$

8 Berechne wie im Beispiel.

$3\frac{1}{3} - \frac{2}{3} = 2\frac{4}{3} - \frac{2}{3} = 2\frac{2}{3}$

$3\frac{1}{4} - \frac{3}{4} = \square$

$5\frac{1}{3} - \frac{2}{3} = \square$

$2\frac{1}{5} - \frac{3}{5} = \square$

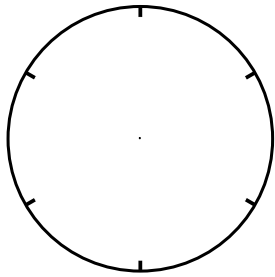
$4\frac{2}{7} - \frac{6}{7} = \square$

$2\frac{1}{9} - \frac{8}{9} = \square$

$3\frac{1}{11} - \frac{5}{11} = \square$

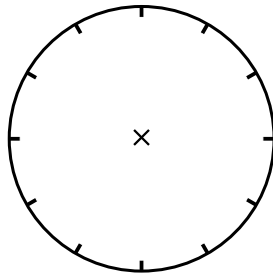
Ungleichnamige Brüche addieren und subtrahieren

- 1 Stelle die Additionsaufgaben zeichnerisch dar. Färbe den ersten Summanden rot und den zweiten Summanden blau. Schreibe die Additionsaufgabe als Aufgabe mit gleichnamigen Brüchen und löse dann.



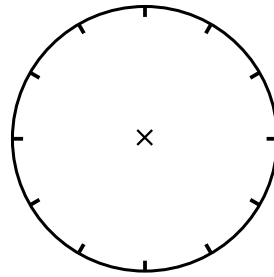
$$\text{a) } \frac{1}{2} + \frac{1}{6} =$$

$$\frac{\square}{6} + \frac{\square}{6} = \frac{\square}{6}$$



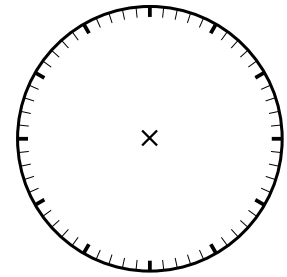
$$\text{b) } \frac{3}{4} + \frac{1}{12} =$$

$$\frac{\square}{12} + \frac{\square}{12} = \frac{\square}{12}$$



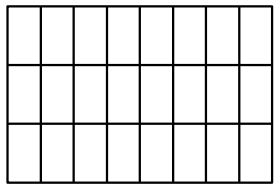
$$\text{c) } \frac{1}{3} + \frac{1}{4} =$$

$$\frac{\square}{12} + \frac{\square}{12} = \frac{\square}{12}$$



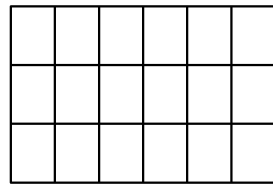
$$\text{d) } \frac{1}{6} + \frac{3}{10} =$$

$$\frac{\square}{60} + \frac{\square}{60} = \frac{\square}{60}$$



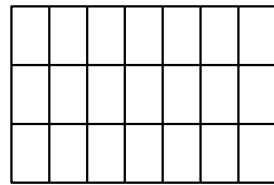
$$\text{e) } \frac{3}{8} + \frac{1}{6} =$$

$$\frac{\square}{24} + \frac{\square}{24} = \frac{\square}{24}$$



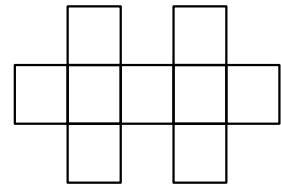
$$\text{f) } \frac{1}{6} + \frac{2}{9} =$$

$$\frac{\square}{18} + \frac{\square}{18} = \frac{\square}{18}$$



$$\text{g) } \frac{2}{3} + \frac{1}{7} =$$

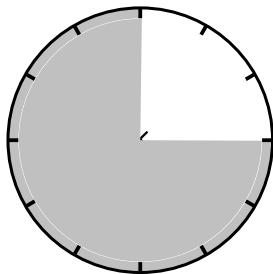
$$\frac{\square}{21} + \frac{\square}{21} = \frac{\square}{21}$$



$$\text{h) } \frac{1}{3} + \frac{4}{9} =$$

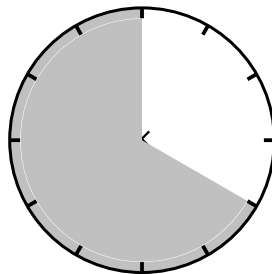
$$\frac{\square}{9} + \frac{\square}{9} = \frac{\square}{9}$$

- 2 Stelle die Subtraktionsaufgaben zeichnerisch dar. Der Minuend ist eingezeichnet, der Subtrahend wird schraffiert.



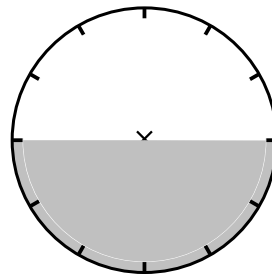
$$\text{a) } \frac{3}{4} - \frac{1}{6} =$$

$$\frac{\square}{12} - \frac{\square}{12} = \frac{\square}{12}$$



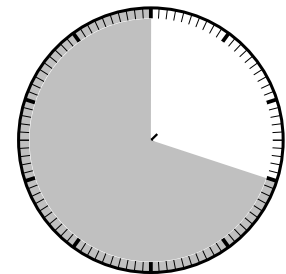
$$\text{b) } \frac{2}{3} - \frac{5}{12} =$$

$$\frac{\square}{12} - \frac{\square}{12} = \frac{\square}{12}$$



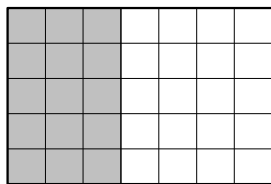
$$\text{c) } \frac{1}{2} - \frac{1}{6} =$$

$$\frac{\square}{12} - \frac{\square}{12} = \frac{\square}{12}$$



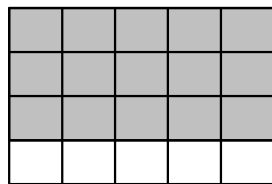
$$\text{d) } \frac{7}{10} - \frac{1}{4} =$$

$$\frac{\square}{100} - \frac{\square}{100} = \frac{\square}{100}$$



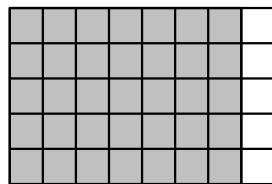
$$\text{e) } \frac{3}{7} - \frac{1}{5} =$$

$$\frac{\square}{35} - \frac{\square}{35} = \frac{\square}{35}$$



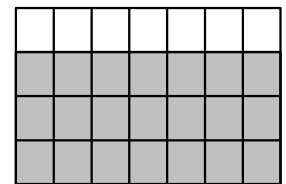
$$\text{f) } \frac{3}{4} - \frac{3}{5} =$$

$$\frac{\square}{20} - \frac{\square}{20} = \frac{\square}{20}$$



$$\text{g) } \frac{7}{8} - \frac{3}{5} =$$

$$\frac{\square}{40} - \frac{\square}{40} = \frac{\square}{40}$$



$$\text{h) } \frac{3}{4} - \frac{4}{7} =$$

$$\frac{\square}{28} - \frac{\square}{28} = \frac{\square}{28}$$

Ungleichnamige Brüche addieren und subtrahieren

3 Zeichne die folgenden Aufgaben jeweils in ein passendes Rechteck. Kennzeichne, welche Aufgabe du in welchem Rechteck zeichnerisch gelöst hast. Berechne die Aufgabe nach dem Zeichnen.

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

e) $\frac{3}{4} - \frac{5}{9} = \frac{\square}{\square} - \frac{\square}{\square} = \square$

b) $\frac{2}{3} - \frac{3}{5} = \frac{\square}{\square} - \frac{\square}{\square} = \square$

f) $\frac{3}{5} + \frac{1}{8} = \frac{\square}{\square} + \frac{\square}{\square} = \square$

c) $\frac{1}{2} + \frac{2}{9} = \frac{\square}{\square} + \frac{\square}{\square} = \square$

g) $\frac{2}{5} + \frac{2}{7} = \frac{\square}{\square} + \frac{\square}{\square} = \square$

d) $\frac{3}{4} - \frac{1}{6} = \frac{\square}{\square} - \frac{\square}{\square} = \square$

h) $\frac{5}{6} - \frac{3}{8} = \frac{\square}{\square} - \frac{\square}{\square} = \square$

a)

4 Berechne.

a) $\frac{3}{5} + \frac{1}{10} = \square$ b) $\frac{2}{3} + \frac{3}{10} = \square$ c) $\frac{2}{5} + \frac{3}{8} = \square$
 $\frac{4}{7} + \frac{3}{14} = \square$ $\frac{4}{9} + \frac{1}{6} = \square$ $\frac{1}{4} + \frac{1}{7} = \square$

5 Berechne.

a) $\frac{4}{5} - \frac{7}{9} = \square$ b) $\frac{9}{10} - \frac{3}{7} = \square$ c) $\frac{7}{8} - \frac{5}{7} = \square$
 $\frac{2}{3} - \frac{1}{2} = \square$ $\frac{4}{5} - \frac{3}{11} = \square$ $\frac{3}{4} - \frac{7}{12} = \square$

5 Berechne wie im Beispiel.

$\frac{2}{5} + \frac{7}{8} = \frac{16}{40} + \frac{35}{40} = \frac{51}{40} = 1 \frac{11}{40}$

a) $\frac{6}{7} + \frac{1}{3} = \square$ b) $\frac{3}{5} + \frac{9}{10} = \square$
 $\frac{5}{9} + \frac{3}{4} = \square$ $\frac{4}{11} + \frac{3}{4} = \square$
 $\frac{7}{8} + \frac{1}{2} = \square$ $\frac{2}{3} + \frac{7}{10} = \square$
 $\frac{5}{6} + \frac{7}{9} = \square$ $\frac{4}{7} + \frac{4}{9} = \square$