



Calculations with fractions




- Adding and subtracting fractions with different denominators
- Finding fractions of amounts
- Multiplying and dividing whole numbers by fractions

Keywords


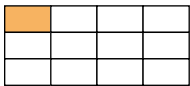
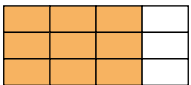
You should know

explanation 1

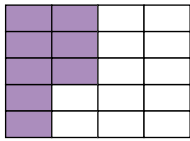
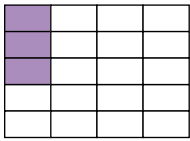
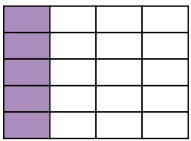
1 Copy and complete.

a   

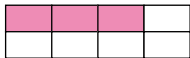
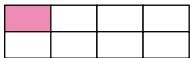
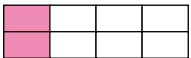
$$\frac{1}{4} + \frac{2}{4} = \frac{\boxed{3}}{4}$$

b   

$$\frac{8}{12} + \frac{1}{12} = \frac{\boxed{9}}{12} = \frac{\boxed{3}}{4}$$

c   

$$\frac{\boxed{6}}{20} - \frac{\boxed{3}}{20} = \frac{\boxed{3}}{20} = \frac{\boxed{3}}{20}$$

d   

$$\frac{\boxed{3}}{\boxed{8}} - \frac{\boxed{1}}{\boxed{8}} = \frac{\boxed{2}}{\boxed{8}} = \frac{\boxed{1}}{\boxed{4}}$$

2 Work these out. Give each answer in its lowest terms.

a $\frac{4}{7} + \frac{2}{7}$

b $\frac{3}{5} - \frac{1}{5}$

c $\frac{2}{13} + \frac{5}{13}$

d $\frac{3}{16} + \frac{5}{16}$

e $\frac{7}{18} - \frac{1}{18}$

f $\frac{8}{21} - \frac{5}{21}$

g $\frac{7}{25} + \frac{14}{25}$

h $\frac{19}{30} - \frac{11}{30}$

i $\frac{13}{15} - \frac{4}{15}$

j $\frac{5}{18} + \frac{7}{18}$

k $\frac{7}{20} + \frac{9}{20}$

l $\frac{13}{24} - \frac{7}{24}$

explanation 2

3 Copy and complete.

a

$$\frac{1}{2} + \frac{1}{4} = \frac{\boxed{}}{4} + \frac{1}{4} = \frac{\boxed{}}{4}$$

b

$$\frac{\boxed{}}{9} + \frac{\boxed{}}{3} = \frac{\boxed{}}{9} + \frac{\boxed{}}{9} = \frac{\boxed{}}{9}$$

c $\frac{1}{8} + \frac{1}{16} = \frac{\boxed{}}{16} + \frac{1}{16} = \frac{\boxed{}}{16}$

d $\frac{2}{5} + \frac{3}{15} = \frac{\boxed{}}{15} + \frac{3}{15} = \frac{\boxed{}}{15} = \frac{\boxed{}}{5}$

4 Work these out.

a $\frac{1}{5} + \frac{1}{10}$

b $\frac{1}{8} + \frac{1}{4}$

c $\frac{1}{6} + \frac{2}{3}$

d $\frac{2}{7} + \frac{1}{14}$

e $\frac{3}{8} + \frac{9}{16}$

f $\frac{5}{6} + \frac{1}{12}$

g $\frac{11}{15} + \frac{7}{30}$

h $\frac{7}{16} + \frac{3}{8}$

i $\frac{1}{3} + \frac{4}{9}$

5 Work these out. Give your answers in their lowest terms.

a $\frac{1}{12} + \frac{1}{6}$

b $\frac{1}{6} + \frac{5}{18}$

c $\frac{1}{3} + \frac{1}{6}$

d $\frac{2}{7} + \frac{3}{14}$

e $\frac{2}{5} + \frac{4}{15}$

f $\frac{3}{7} + \frac{5}{21}$

g $\frac{7}{12} + \frac{4}{24}$

h $\frac{3}{10} + \frac{12}{20}$

i $\frac{3}{4} + \frac{1}{12}$

explanation 3

6 Copy and complete.

a

$$\frac{5}{10} - \frac{1}{5} = \frac{\square}{10} - \frac{2}{10} = \frac{\square}{10}$$

b

$$\frac{9}{12} - \frac{2}{3} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$$

c

$$\frac{15}{20} - \frac{2}{5} = \frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$$

7 Work these out.

a $\frac{7}{12} - \frac{1}{6}$

b $\frac{3}{4} - \frac{1}{8}$

c $\frac{13}{16} - \frac{1}{8}$

d $\frac{4}{5} - \frac{1}{10}$

e $\frac{13}{18} - \frac{4}{9}$

f $\frac{4}{5} - \frac{7}{20}$

g $\frac{2}{3} - \frac{11}{18}$

h $\frac{23}{24} - \frac{1}{6}$

8 Work these out. Give your answers in their lowest terms.

a $\frac{5}{12} - \frac{1}{6}$

b $\frac{3}{5} - \frac{1}{10}$

c $\frac{7}{12} - \frac{1}{3}$

d $\frac{3}{4} - \frac{7}{12}$

e $\frac{5}{6} - \frac{6}{18}$

f $\frac{7}{8} - \frac{5}{24}$

g $\frac{12}{15} - \frac{2}{5}$

h $\frac{23}{24} - \frac{5}{6}$

explanation 4

9 Work these out.

a $\frac{1}{2}$ of 30

b $\frac{1}{4}$ of 80

c $\frac{1}{2}$ of 18

d $\frac{1}{4}$ of 100

e $\frac{1}{2}$ of 24

10 Work these out.

a $\frac{1}{3}$ of 18

b $\frac{1}{5}$ of 30

c $\frac{1}{8}$ of 40

d $\frac{1}{9}$ of 72

e $\frac{1}{10} \times 90$

f $\frac{1}{6} \times 48$

g $\frac{1}{4} \times 44$

h $\frac{1}{12} \times 72$

11 Work these out.

a $\frac{2}{5}$ of 35

b $\frac{3}{4}$ of 36

c $\frac{2}{7}$ of 21

d $\frac{3}{8}$ of 32

e $\frac{5}{6} \times 42$

f $\frac{4}{9} \times 54$

g $\frac{3}{11} \times 88$

h $\frac{5}{12} \times 96$

12 Amir saves $\frac{2}{5}$ of his wages each week. Last week his wages were £400.
How much did he save?

13 Jean asked 300 people which football team they support. These are her results.

$\frac{1}{6}$ supported Arsenal,

$\frac{2}{5}$ supported Manchester United,

$\frac{3}{10}$ supported Chelsea,

$\frac{2}{15}$ supported Liverpool.



Copy and complete the table.

Football team	Arsenal	Manchester United	Chelsea	Liverpool
Number of supporters				

14 Find these amounts.

a $\frac{1}{7}$ of 14 km

b $\frac{1}{6}$ of 24 cm

c $\frac{1}{12} \times 84$ g

d $\frac{7}{8} \times 16$ kg

15 Find these amounts.

a $\frac{5}{6}$ of 36 kg

b $\frac{4}{9}$ of 18 m

c $\frac{7}{12} \times 36$ kg

d $\frac{5}{6} \times 24$ cm

16 The outdoor toys are reduced by two thirds in the autumn sale.

How much do you save on each of these?

a bowls £36

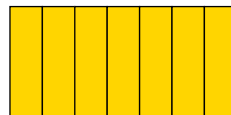
b paddling pool £18

c bag of balls £6

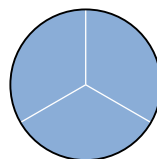
d bucket, spade and fork set £4.50

explanation 5

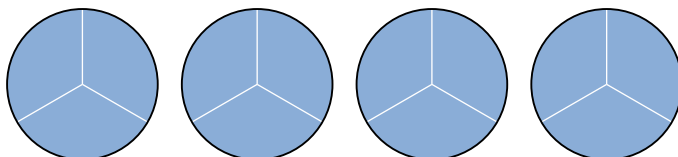
17 a How many sevenths are there in this rectangle?



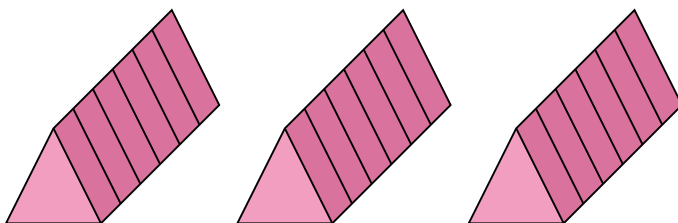
b How many thirds are there in this circle?



c How many thirds are there in these four circles?



d How many sixths are there in these three prisms?



18 a How many quarters are there in 20?

b Copy and complete this number sentence. $20 = \square \times \frac{1}{4}$

19 Copy and complete this sentence.

Dividing by $\frac{1}{5}$ is the same as multiplying by \square .

20 Work these out.

a $10 \div \frac{1}{2}$

b $9 \div \frac{1}{3}$

c $12 \div \frac{1}{5}$

d $20 \div \frac{1}{7}$

e $8 \div \frac{1}{4}$

f $15 \div \frac{1}{6}$

g $3 \div \frac{1}{10}$

h $1 \div \frac{1}{12}$