



Year 4 fractions (including decimals)

Prior Knowledge (Year 3)

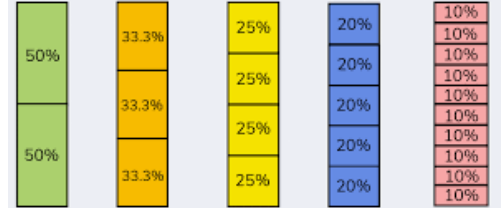
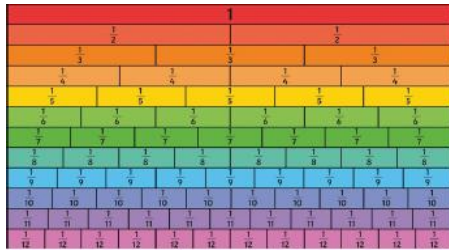
- Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
- Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- Recognise and show, using diagrams, equivalent fractions with small denominators
- Add and subtract fractions with the same denominator within one whole
- Compare and order unit fractions, and fractions with the same denominators

fractions (including decimals)		Working Towards	Within	Expected	Above
	Recognise and show, using diagrams, families of common equivalent fractions				
	Count up and down in hundredths; recognise that hundredths arise when dividing an object by a 100 and dividing tenths by 10				
	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number				
	Add and subtract fractions with the same denominator				
	Recognise and write decimal equivalents of any number of tenths or hundredths				
	Recognise and write decimal equivalents to $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$				
	Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths				
	Round decimals with 1 decimal place to the nearest whole number				
	Compare numbers with the same number of decimal places up to 2 decimal places				
	Solve simple measure and money problems involving fractions and decimals to 2 decimal places				
Highlights: _____					



Glossary

vocabulary	word class	definition
whole	noun	a thing that is complete
fraction	noun	a numerical quantity that is not a whole number (e.g. $\frac{1}{2}$, 0.5)
half	noun	either of two equal or corresponding parts into which something is or can be divided
equal	adjective	being the same in quantity, size, degree, or value
quarter	noun	each of four equal or corresponding parts into which something is or can be divided
third	number	each of three equal parts into which something is or may be divided
tenth	number	each of ten equal parts into which something is or may be divided
unit fraction		A unit fraction is any fraction with 1 as its numerator (top number), and a whole number for the denominator (bottom number)
non-unit fraction		A non-unit fraction is a fraction with a numerator (top number) greater than 1. They could be proper fractions (less than 1 whole, where the denominator (bottom number) is larger than the numerator) or improper fractions
denominator	noun	the number below the line in a vulgar fraction; a divisor
numerator	noun	the number above the line in a vulgar fraction showing how many of the parts indicated by the denominator are taken, for example, 2 in $\frac{2}{3}$
hundredth		each of one hundred equal parts into which something is or may be divided
equivalent	adjective	equal in value
decimal	adjective	relating to or denoting a system of numbers and arithmetic based on the number ten, tenth parts, and powers of ten
decimal	adjective	a fraction whose denominator is a power of ten and whose numerator is expressed by figures placed to the right of a decimal point



Tenths and Hundredths Place Value Grid

Hundreds	Tens	Ones	Tenths	Hundredths



0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1

1/100	2/100	3/100	4/100	5/100	6/100	7/100	8/100	9/100	10/100
11/100	12/100	13/100	14/100	15/100	16/100	17/100	18/100	19/100	20/100
21/100	22/100	23/100	24/100	25/100	26/100	27/100	28/100	29/100	30/100
31/100	32/100	33/100	34/100	35/100	36/100	37/100	38/100	39/100	40/100
41/100	42/100	43/100	44/100	45/100	46/100	47/100	48/100	49/100	50/100
51/100	52/100	53/100	54/100	55/100	56/100	57/100	58/100	59/100	60/100
61/100	62/100	63/100	64/100	65/100	66/100	67/100	68/100	69/100	70/100
71/100	72/100	73/100	74/100	75/100	76/100	77/100	78/100	79/100	80/100
81/100	82/100	83/100	84/100	85/100	86/100	87/100	88/100	89/100	90/100
91/100	92/100	93/100	94/100	95/100	96/100	97/100	98/100	99/100	100/100

Fractions of Quantities

To find a fraction of a number, divide by the denominator and multiply by numerator.

To find quarters of 20:

20			
5	5	5	5

$$\frac{1}{4} \text{ of } 20 = 5 \quad \frac{2}{4} \text{ of } 20 = 10 \quad \frac{3}{4} \text{ of } 20 = 15 \quad \frac{4}{4} \text{ of } 20 = 20$$

To find eighths of 56:

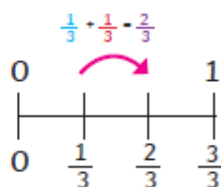
56							
7	7	7	7	7	7	7	7

$$\begin{aligned} \frac{1}{8} \text{ of } 56 &= 7 & \frac{2}{8} \text{ of } 56 &= 14 & \frac{3}{8} \text{ of } 56 &= 21 & \frac{4}{8} \text{ of } 56 &= 28 \\ \frac{5}{8} \text{ of } 56 &= 35 & \frac{6}{8} \text{ of } 56 &= 42 & \frac{7}{8} \text{ of } 56 &= 49 & \frac{8}{8} \text{ of } 56 &= 56 \end{aligned}$$

Subtracting fractions

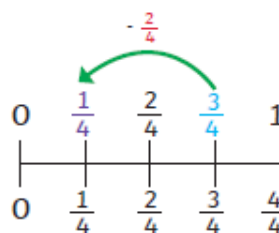
Fractions can be added when the denominators are the same.

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

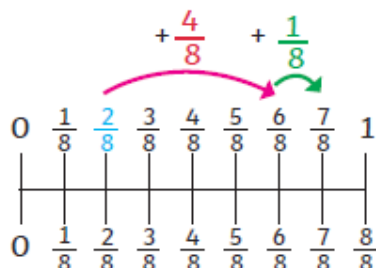



Fractions can be subtracted when the denominators are the same.

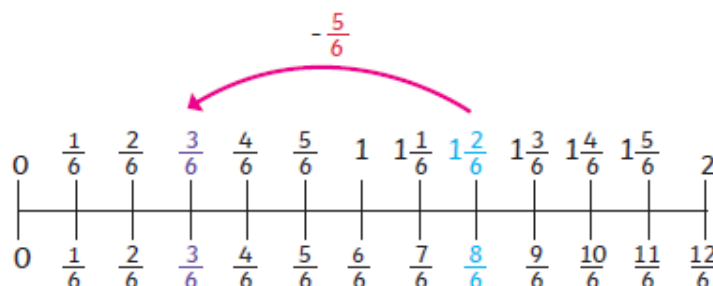
$$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$$

$$\frac{2}{8} + \frac{4}{8} + \frac{1}{8} = \frac{7}{8}$$

$$\frac{8}{6} - \frac{5}{6} = \frac{3}{6}$$

Future Learning

Year 5 fractions, decimals and percentages

- Compare and order fractions whose denominators are all multiples of the same number
- Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- Read and write decimal numbers as fractions
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place
- Read, write, order and compare numbers with up to 3 decimal places
- Solve problems involving number up to 3 decimal places
- Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction
- Solve problems which require knowing percentage and decimal equivalents of $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and fractions with a denominator of a multiple of 10 or 25

Year 6 (including decimals and percentages)

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- Compare and order fractions, including fractions > 1
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- Multiply simple pairs of proper fractions, writing the answer in its simplest form
- Divide proper fractions by whole numbers
- Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.
- Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places
- Multiply one-digit numbers with up to 2 decimal places by whole numbers
- Use written division methods in cases where the answer has up to 2 decimal places
- Solve problems which require answers to be rounded to specified degrees of accuracy
- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts