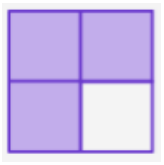
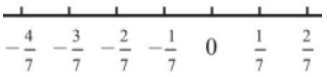
KS3 2 Unit 8 Calculating with Fractions — Knowledge Organiser

Prior Knowledge			
1	Equivalent fractions	$\frac{1}{2} = \frac{2}{4}$	Fractions with the same value
2	Numerator	$\frac{3}{4}$ 	The top number is the number of parts.
3	Denominator		The bottom number is the total number of parts the whole is divided into.
4	Improper fraction	$\frac{7}{4}$	The numerator is the same or bigger than the denominator.
5	Mixed number	$1\frac{3}{8}$	An improper fraction written as a whole number and a fraction.
6	Write equivalent fractions	$\frac{1}{3}$ (×2) $\frac{2}{6}$ (×2) $\frac{4}{12}$ (×2) $\frac{8}{24}$ (×2) $\frac{16}{48}$	Multiply or divide the numerator and the denominator by the same number.
7	Highest common factor (HCF)	12: 1, 2, 3, 4, 6, 12 16: 1, 2, 4, 8, 16 4 is the HCF of 12 and 16	The highest common factor that will divide 2 or more numbers exactly.
8	Simplify fractions	$\frac{16}{40} \div 8 = \frac{2}{5}$	Simplify by dividing the numerator and the denominator by their highest common factor.
9	Lowest common multiple (LCM)	3: 3, 6, 9, 12, 15, 18, 21, 24 … 4: 4, 8, 12, 16, 20, 24, 28, … 12 is the LCM of 3 and 4	The smallest number that is the multiple of 2 or more numbers.
Core Knowledge			
10	More or less than ½	$\frac{5}{8} > \frac{1}{2}$	Check if the numerator is more or less than ½ of the denominator.
11	Common denominator	$\frac{1}{12}$, $\frac{5}{12}$ and $\frac{7}{12}$	Fractions with the same denominator.
12	Ordering fractions	$\frac{3}{10}, \frac{1}{3}, \frac{2}{5}$	Write the fractions as equivalent fractions with the same denominator, then compare the numerators.
13	Ordering negative fractions		Use a number line to help order fractions, think about how close a fraction is to zero.
14	Adding or subtracting fractions	$\frac{5}{12} + \frac{2}{12} = \frac{7}{12}$	To add or subtract the fractions must have a common denominator. Add or subtract the numerators, NOT the denominators.
15	Multiplying fractions	$\frac{5}{12} \times \frac{3}{10} = \frac{5 \times 3}{12 \times 10} = \frac{3 \times 5}{12 \times 10} = \frac{1}{8}$	If possible, simplify first by cross cancelling. Then multiply the numerators and multiply the denominators.
16	Reciprocal	$\frac{3}{4}$ reciprocal $\frac{4}{3}$ reciprocal	The reciprocal of a fraction is the 'upside down' fraction. Also known as the multiplicative inverse. A number multiplied by its reciprocal is always 1.
17	Whole numbers as fractions	$4 = \frac{4}{1}$	Write a whole number as a fraction by giving it a denominator of 1.

18	Dividing fractions	$\frac{2}{3} \div \frac{5}{4} = \frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$	To divide fractions, multiply by its reciprocal.
19	Adding or subtracting mixed numbers	$2\frac{1}{6} + 3\frac{4}{6} = 5 + \frac{1}{6} + \frac{4}{6} = 5\frac{5}{6}$	Add or subtract the whole number parts first, then add or subtract the fraction part using a common denominator.
20	Multiplying or dividing mixed numbers	$2\frac{1}{3} \times 4\frac{2}{5} = \frac{7}{3} \times \frac{22}{5} = \frac{154}{15}$	Always write mixed numbers as improper fractions before multiplying or dividing.
21	Unit fraction	$\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{16}$, $\frac{1}{35}$	A unit fraction has a numerator of 1.