1.1.2 Fractions

A unit fraction is a fraction with numerator 1

$\frac{1}{2}$ *"one over two"* or *"one half"* $\frac{1}{3}$ *"one over three"* or *"one third"*

$\frac{1}{4}$ *"one over four"* or *"one fourth"* $\frac{1}{5}$ *"one over five"* or *"one fifth"*

$\frac{1}{10}$ *"one over ....."* or *"one ....."* $\frac{1}{100}$ *"one over ....."* or *"one ....."*

$\frac{1}{14}$ *"one over ....."* or *"one ....."* 0.027 is *"twenty seven thousandths"*

Exercise 30 — Guess my number. Use the clues to work out which number in the grid is being described:

My number is more than 0.25. My number contains the digit 9. My number has a 3 in the hundredths column. My number is less than 7 tenths. The digit in the tenths column is odd.

0.83	0.31	0.21	0.47	0.9
0.73	0.1	0.293	0.09	0.639
0.24	0.92	1.5	0.539	0.86

An positive (or nil) integer are called **whole** number.

An **improper fraction** is a fraction that is more than 1 whole . For example $\frac{5}{4}$ or $\frac{13}{10}$.

A **mixed number** is an interger + a fraction : $3\frac{1}{10} = 3.1$ or $5\frac{1}{4} = 5.25$.

The **reciprocal** of $\frac{3}{4}$ is $\frac{4}{3}$. The **reciprocal** of $\frac{1}{5}$ is $\frac{5}{1} = 5$.

Exercise 31 Write as whole numbers :

$\frac{15}{3} =$ ..... $\frac{18}{2} =$ ..... $\frac{24}{6} =$ .....

Exercise 32 Write as a mixed number :

$\frac{23}{10} =$ ..... $\frac{43}{20} =$ ..... $\frac{13}{3} =$ .....

Exercise 33 Write as improper fractions :

$2\frac{2}{5} =$ ..... $1\frac{1}{8} =$ ..... $3\frac{4}{9} =$ .....

Exercise 34 Work out the reciprocals of $3\frac{2}{5}$.

Exercise 35 — Arrange the Digits.

Using each of these digits just once each, make the following statements true:

0	1	2	3	4
5	6	7	8	9

$\square.\square\square < 6\frac{1}{8}$ $\square.\square\square < 3.59$

$\square.\square \leqslant \frac{48}{100}$ $\square.\square < 1\frac{3}{10}$

1.1.3 Writing algebraic expressions and equations

■ **Example 1.2 — From algebraic expressions to word expressions.**

"one more than x" or "one plus x" ..... $x+1$

"one less than x" or "x minus one" ..... $x-1$

"two lots of x then plus 1" or "two times x then add one" ..... $2x+1$

"four lots of all of x minus one" or "four times all of x minus one" ..... $4(x-1)$

Exercise 36 — Get cozy with expressions. Complete each line for matching algebraic and word expressions.

1) two more than x ..... four less than y .....

2) y more than negative six .....

3) three lots of x ..... six lots of negative y .....

4) two lots of x then plus four .....

5) the total of three times x then plus negative four .....

6) four lots of all of double y subtract one .....

7) the total of x and y ..... x subtract two lots of y .....

8) square root of all of six add y ..... seven times x add three .....

9) the square of three lots of y ..... ten less than y, then all divided into five .....

10) ..... $y-12$

11) ..... $4(y-3)$

12) ..... $x-3y+4$

Exercise 37 For each case, x is the number. Write down an equation and solve it for x.

a number, multiply it by 5 then add 6 and the result is 2.

a number, multiply by 3 then take away 7 and the result is 8.

a number, half it, then take away 4 and the result is 11.

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