

Assessing pupils' progress in mathematics at Key Stage 3

Year 9 assessment package
Number

Examples of pupils' work

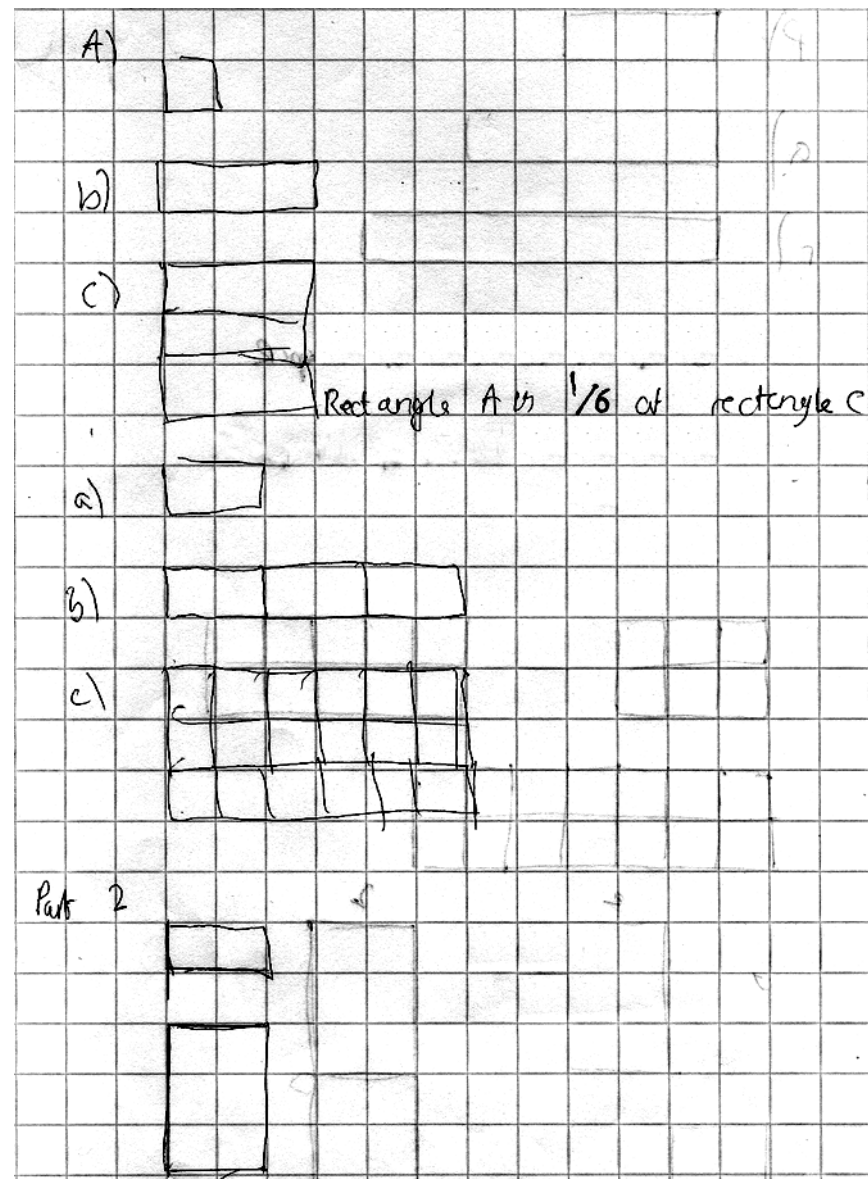


Year 9

Number


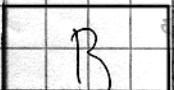
LESSON 1: *Thinking proportionately*

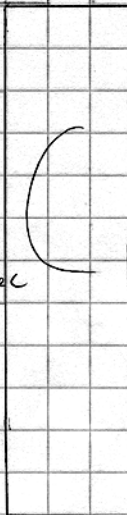
Using proportions sheet 1
Level 4



Using proportions sheets 1 and 2
Level 5



Sheet 1
Part 1

Rectangle A =  Rectangle B = 

Rectangle C = 

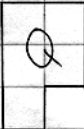
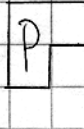
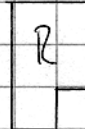
Part 2

Rectangle A is $\frac{1}{8}$ of Rectangle C



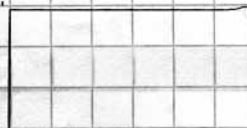
Sheet 2
Part 1

Shape P is $\frac{3}{5}$ of shape R.

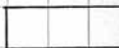

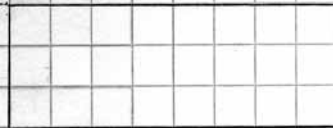
  

shape P is 60% of shape R.

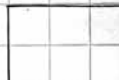
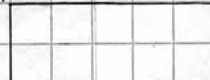
Using Proportions sheet 1
Part 1:-

A.  B.  C. 

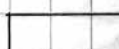
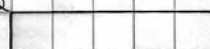
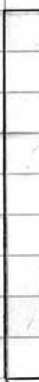
Rectangle A is $\frac{1}{4}$ of rectangle C.

A.  B.  C. 

Part 2:-

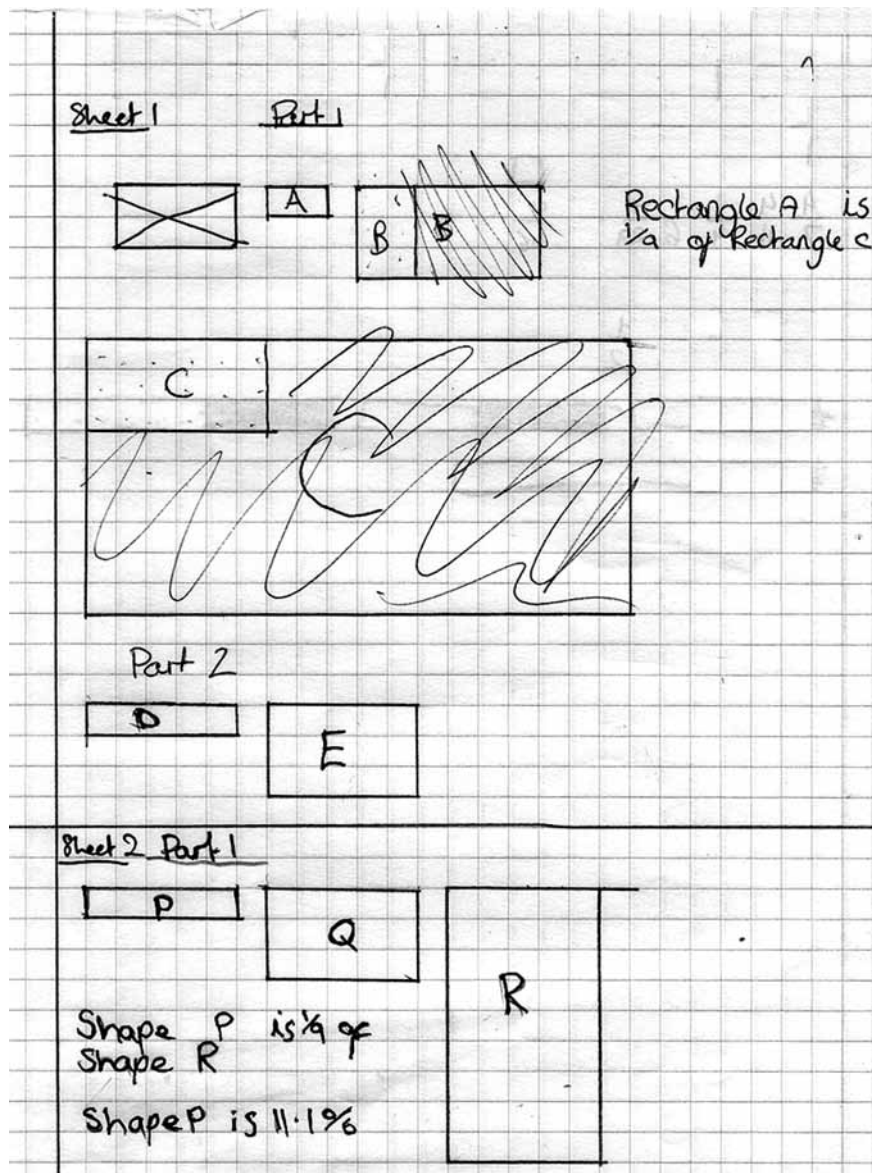
D.  E. 

Sheet 2
Part 1:-

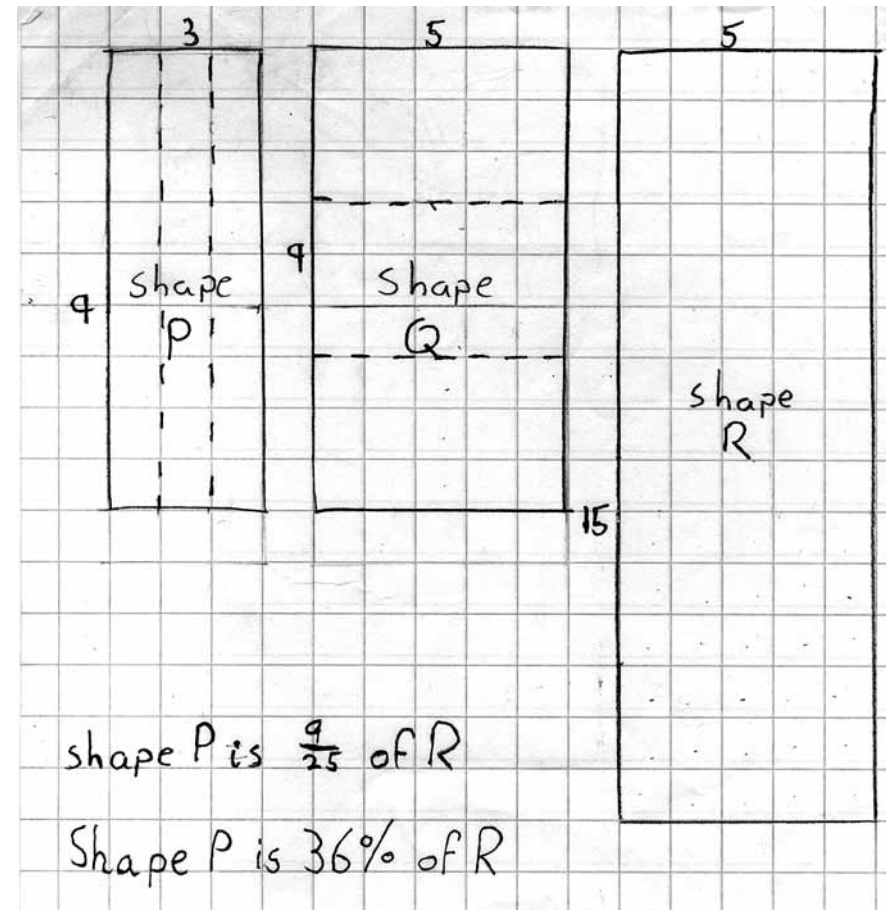
P  Q  R 

Shape P is $\frac{1}{3}$ of shape R
shape P is 33% of shape R.

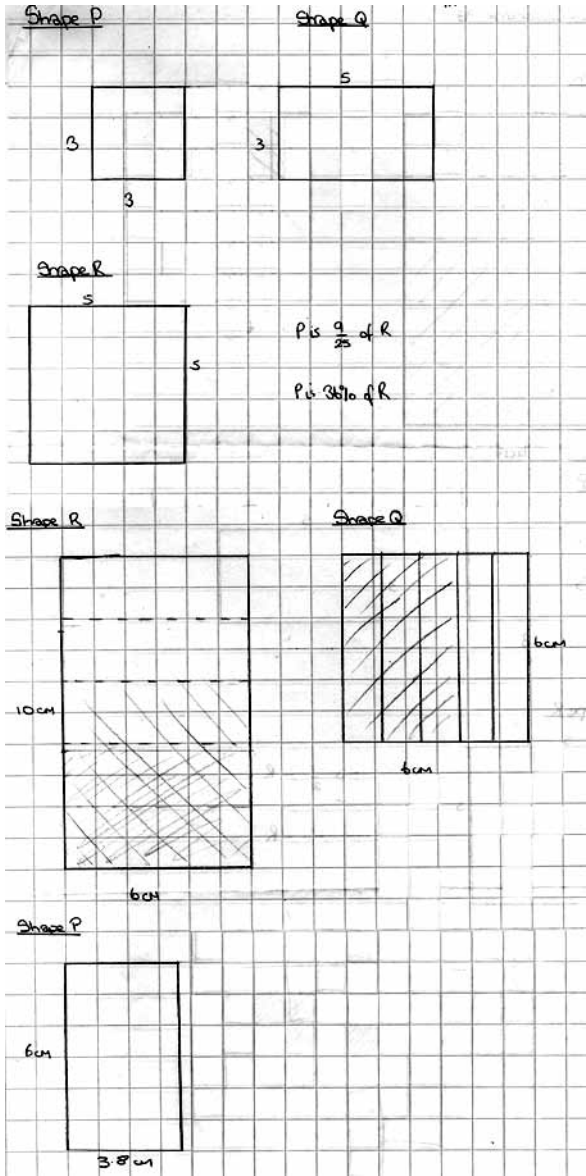
Using proportions sheets 1 and 2
Level 5



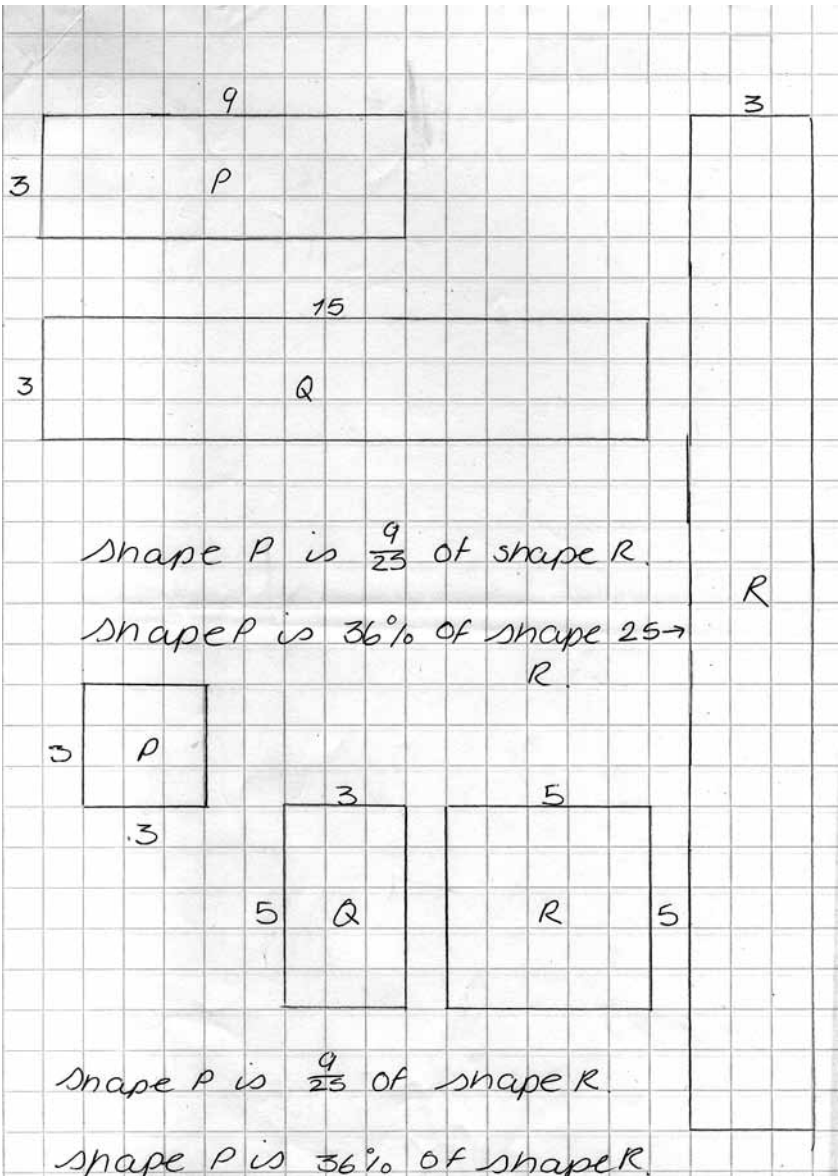
Using proportions sheet 2
Level 6



Using proportions sheet 2
 Level 6



Using proportions sheet 2
 Above level 6



Year 9

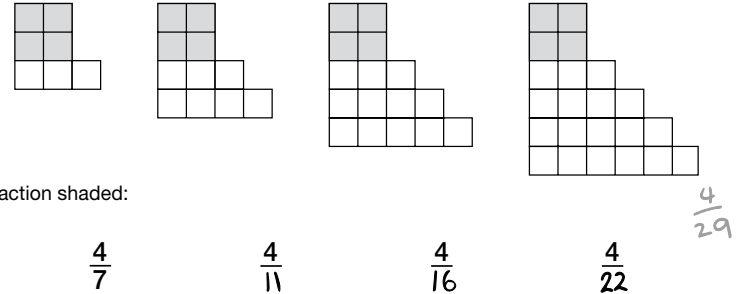
Number

LESSON 2: *Secret sequences*

Secret sequences sheet 1 Level 4

Part 1

(a) For the sequence of shapes below, complete the fraction shaded for each shape.



(b) Now simplify the fractions as much as possible to make the secret sequence.

$\frac{4}{7}$ $\frac{4}{11}$ $\frac{1}{4}$ $\frac{2}{11}$

(c) What are the next three fractions in the secret sequence?

Part 2

Here are the first four fractions of a different secret sequence.

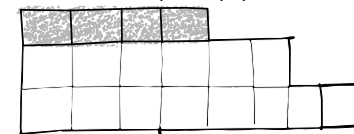
$\frac{2}{3}$ $\frac{1}{2}$ $\frac{2}{5}$ $\frac{1}{3}$

(a) For each one, write an equivalent fraction that has a numerator of 4

$\frac{4}{6}$ $\frac{4}{8}$ $\frac{4}{10}$ $\frac{4}{12}$

(b) What could the sequence of shapes that makes this secret sequence look like?

Draw it on squared paper.

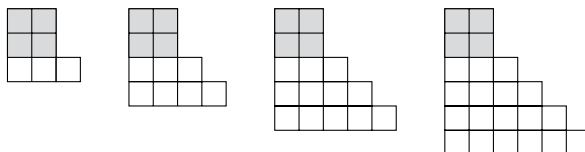


Secret sequences sheet 1

Level 5

Part 1

(a) For the sequence of shapes below, complete the fraction shaded for each shape.



Fraction shaded:

$$\frac{4}{7} \quad \frac{4}{11} \quad \frac{4}{16} \quad \frac{4}{22}$$

(b) Now simplify the fractions as much as possible to make the secret sequence.

$$\frac{4}{7} \quad \frac{4}{11} \quad \frac{1}{4} \quad \frac{2}{11}$$

(c) What are the next three fractions in the secret sequence?

$$\frac{4}{29} \quad \frac{4}{37} \quad \frac{4}{46} = \frac{2}{24} = \frac{1}{12}$$

Part 2

Here are the first four fractions of a different secret sequence.

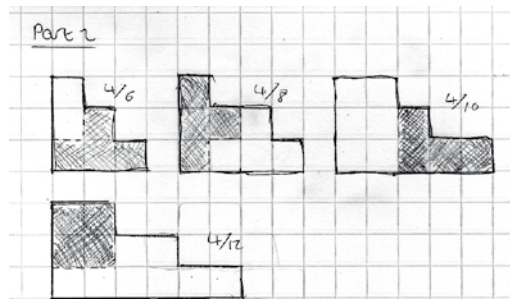
$$\frac{2}{3} \quad \frac{1}{2} \quad \frac{2}{5} \quad \frac{1}{3}$$

(a) For each one, write an equivalent fraction that has a numerator of 4

$$\frac{4}{6} \quad \frac{4}{8} \quad \frac{4}{10} \quad \frac{4}{12}$$

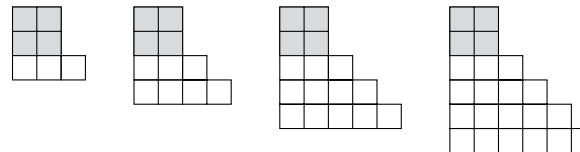
(b) What could the sequence of shapes that makes this secret sequence look like?

Draw it on squared paper.



Part 1

(a) For the sequence of shapes below, complete the fraction shaded for each shape.



Fraction shaded:

$$\frac{4}{7} \quad \frac{4}{11} \quad \frac{4}{16} \quad \frac{4}{22}$$

(b) Now simplify the fractions as much as possible to make the secret sequence.

$$\frac{4}{7} \quad \frac{4}{11} \quad \frac{1}{4} \quad \frac{2}{11}$$

(c) What are the next three fractions in the secret sequence?

$$\frac{4}{29} \quad \frac{4}{37} \quad \frac{4}{46}$$

Part 2

Here are the first four fractions of a different secret sequence.

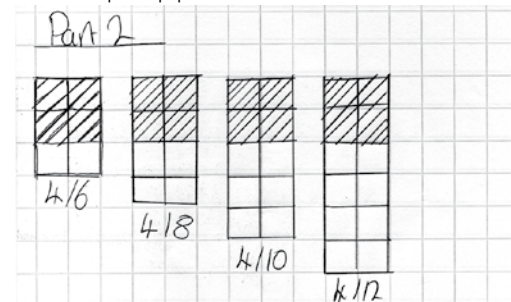
$$\frac{2}{3} \quad \frac{1}{2} \quad \frac{2}{5} \quad \frac{1}{3}$$

(a) For each one, write an equivalent fraction that has a numerator of 4

$$\frac{4}{6} \quad \frac{4}{8} \quad \frac{4}{10} \quad \frac{4}{12}$$

(b) What could the sequence of shapes that makes this secret sequence look like?

Draw it on squared paper.



Secret sequences sheet 2

Level 5

Part 1

A secret sequence can be made using the expression $\frac{n+2}{30}$

n is the term number, so the first term is when $n = 1$

Therefore, the first term is $\frac{1+2}{30} = \frac{3}{30}$

Use the expression $\frac{n+2}{30}$ to find the first seven terms of the sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{30}$	$\frac{4}{30}$	$\frac{5}{30}$	$\frac{6}{30}$	$\frac{7}{30}$	$\frac{8}{30}$	$\frac{9}{30}$

Now simplify the fractions as much as possible to make the secret sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{1}{10}$	$\frac{2}{15}$	$\frac{1}{6}$	$\frac{1}{5}$	$\frac{7}{30}$	$\frac{1}{4}$	$\frac{9}{30}$

Part 2

Here are the first seven terms of a different secret sequence:

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{12}$	$\frac{3}{8}$	$\frac{7}{20}$	$\frac{1}{3}$	$\frac{9}{28}$

What expression was used to make the secret sequence?

Secret sequences sheet 2

Level 6

Part 1

A secret sequence can be made using the expression $\frac{n+2}{30}$

n is the term number, so the first term is when $n = 1$

Therefore, the first term is $\frac{1+2}{30} = \frac{3}{30}$

Use the expression $\frac{n+2}{30}$ to find the first seven terms of the sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{30}$	$\frac{4}{30}$	$\frac{5}{30}$	$\frac{6}{30}$	$\frac{7}{30}$	$\frac{8}{30}$	$\frac{9}{30}$

Now simplify the fractions as much as possible to make the secret sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{1}{10}$	$\frac{2}{15}$	$\frac{1}{6}$	$\frac{2}{10}$	$\frac{7}{30}$	$\frac{4}{15}$	$\frac{3}{10}$
			$\frac{1}{5}$			

Part 2

Here are the first seven terms of a different secret sequence:

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{12}$	$\frac{3}{8}$	$\frac{7}{20}$	$\frac{1}{3}$	$\frac{9}{28}$

What expression was used to make the secret sequence?

$\frac{3}{4}$	$\frac{4}{8}$	$\frac{5}{12}$	$\frac{6}{16}$	$\frac{7}{20}$	$\frac{8}{24}$	$\frac{9}{28}$
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Secret sequences sheet 2

Level 6

Part 1

A secret sequence can be made using the expression $\frac{n+2}{30}$

n is the term number, so the first term is when $n = 1$

Therefore, the first term is $\frac{1+2}{30} = \frac{3}{30}$

Use the expression $\frac{n+2}{30}$ to find the first seven terms of the sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{30}$	$\frac{4}{30}$	$\frac{5}{30}$	$\frac{6}{30}$	$\frac{7}{30}$	$\frac{8}{30}$	$\frac{9}{30}$

Now simplify the fractions as much as possible to make the secret sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{1}{10}$	$\frac{2}{15}$	$\frac{1}{6}$	$\frac{1}{5}$	$\frac{7}{30}$	$\frac{4}{15}$	$\frac{3}{10}$

Part 2

Here are the first seven terms of a different secret sequence:

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{12}$	$\frac{3}{8}$	$\frac{7}{20}$	$\frac{1}{3}$	$\frac{9}{28}$

What expression was used to make the secret sequence?

$$\begin{array}{c} \frac{n+1}{n+4} \\ \downarrow \\ \frac{2}{4} \\ \downarrow \\ \frac{4}{8} \end{array}$$

$$\begin{array}{c} \frac{3}{8} \\ \downarrow \\ \frac{6}{16} \end{array}$$

$$\begin{array}{c} \frac{1}{3} \\ \downarrow \\ \frac{2}{6} \end{array}$$

Secret sequences sheet 2

Above level 6

Part 1

A secret sequence can be made using the expression $\frac{n+2}{30}$

n is the term number, so the first term is when $n = 1$

Therefore, the first term is $\frac{1+2}{30} = \frac{3}{30}$

Use the expression $\frac{n+2}{30}$ to find the first seven terms of the sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{30}$	$\frac{4}{30}$	$\frac{5}{30}$	$\frac{6}{30}$	$\frac{7}{30}$	$\frac{8}{30}$	$\frac{9}{30}$

Now simplify the fractions as much as possible to make the secret sequence.

1st	2nd	3rd	4th	5th	6th	7th
$\frac{1}{10}$	$\frac{2}{15}$	$\frac{1}{6}$	$\frac{1}{5}$	$\frac{7}{30}$	$\frac{4}{15}$	$\frac{3}{10}$

Part 2

Here are the first seven terms of a different secret sequence:

1st	2nd	3rd	4th	5th	6th	7th
$\frac{3}{4}$	$\frac{14}{28}$	$\frac{5}{12}$	$\frac{36}{816}$	$\frac{7}{20}$	$\frac{18}{324}$	$\frac{9}{28}$

What expression was used to make the secret sequence?

$$\frac{n+2}{4n}$$