

# Assessing pupils' progress in mathematics at Key Stage 3

Year 9 assessment package  
Number

Examples of pupils' work

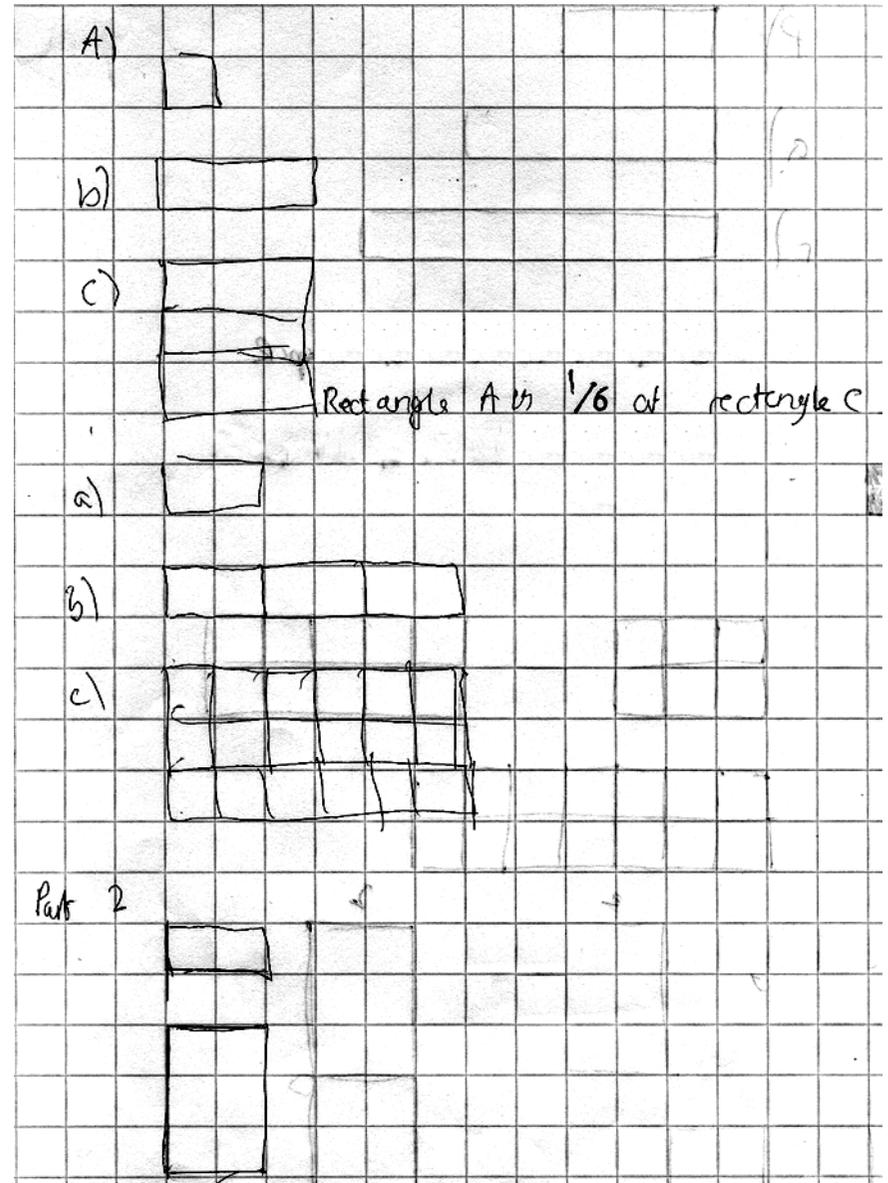


Year 9

Number

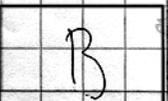
# LESSON 1: *Thinking proportionately*

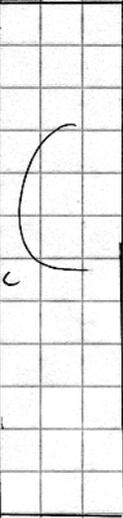
Using proportions sheet 1  
Level 4



Using proportions sheets 1 and 2  
Level 5

Sheet 1  
Part 1

Rectangle A =  Rectangle B = 

Rectangle C = 

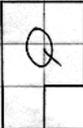
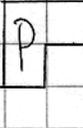
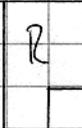
Part 2

Rectangle A =  $\frac{1}{6}$  of Rectangle C

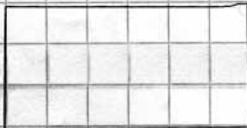
Sheet 2  
Part 1

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

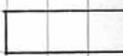
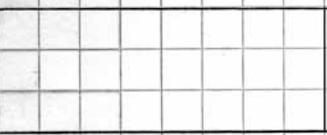
  

Shape P is 60% of shape R.

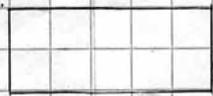
Using Proportions sheet 1  
Part 1:-

A.  B.  C. 

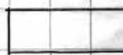
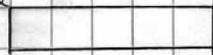
Rectangle A is  $\frac{1}{4}$  of rectangle C.

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

Sheet 1 Part 1

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

Part 2

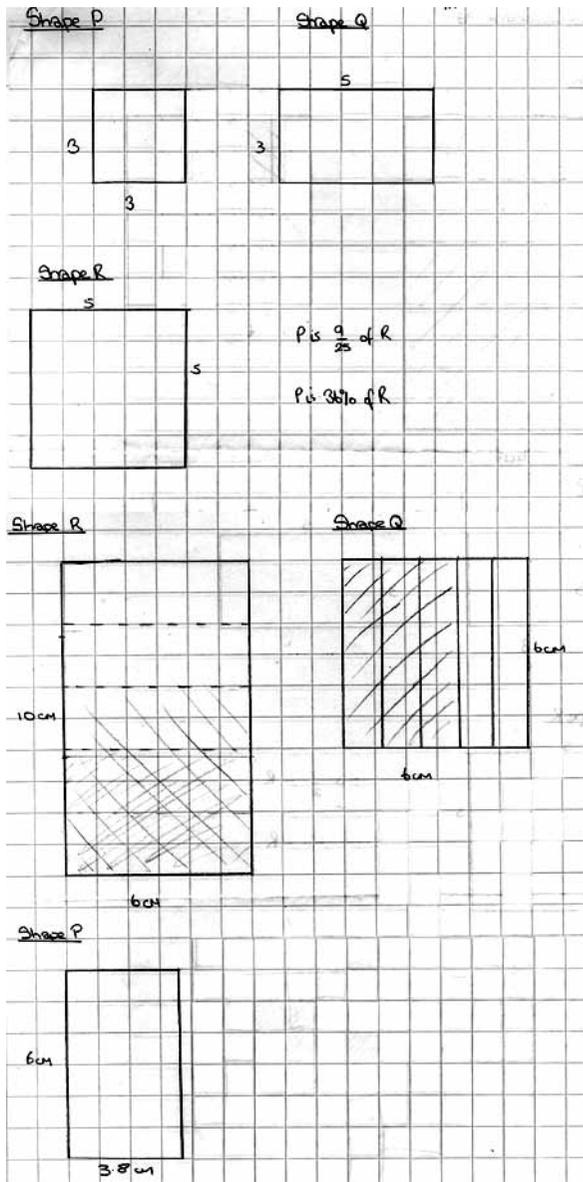
Sheet 2 Part 1

Shape P is  $\frac{1}{4}$  of Shape R  
Shape P is 11.1%

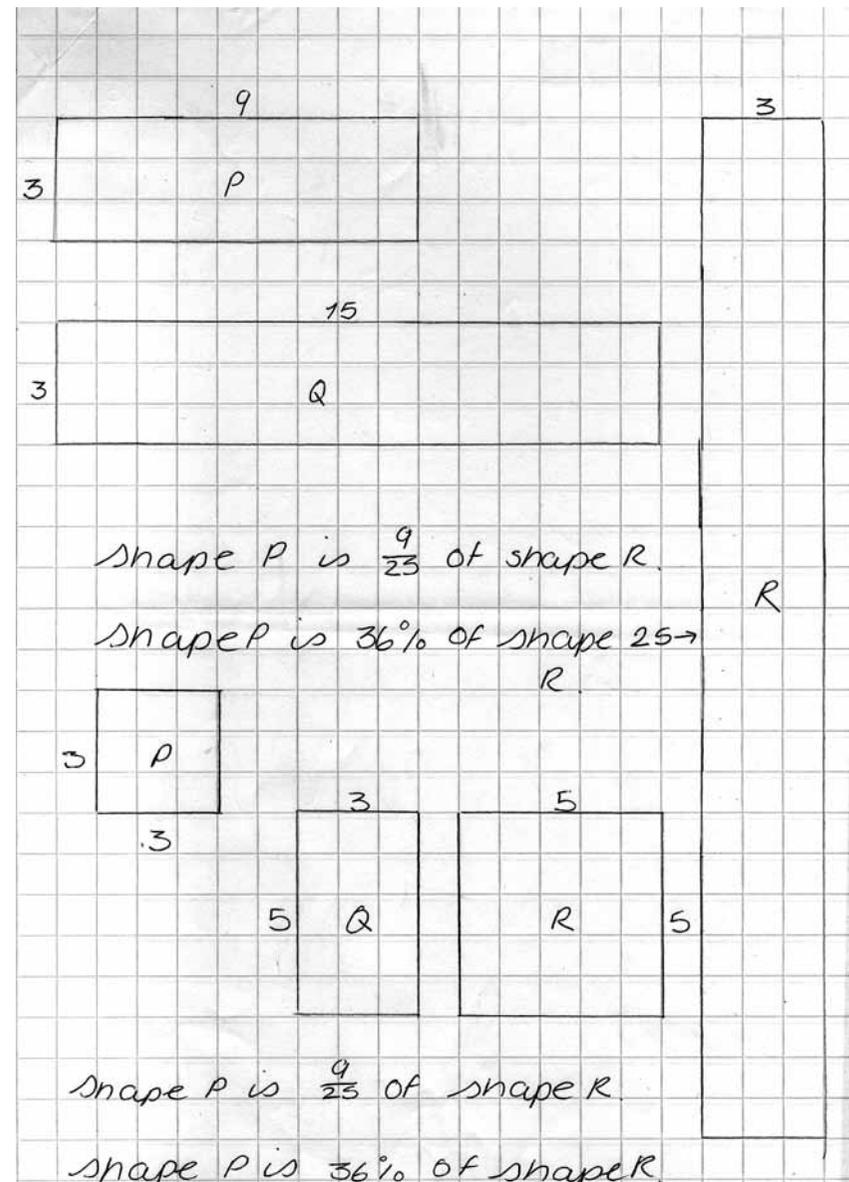
Using proportions sheet 2  
Level 6

shape P is  $\frac{9}{25}$  of R  
Shape P is 36% of R

Using proportions sheet 2  
Level 6



Using proportions sheet 2  
Above level 6



# Year 9

# Number

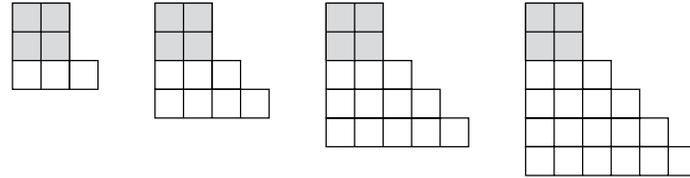
## LESSON 2: *Secret sequences*

### Secret sequences sheet 1

#### Level 4

##### Part 1

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



Fraction shaded:

$\frac{4}{7}$

$\frac{4}{11}$

$\frac{4}{16}$

$\frac{4}{22}$

$\frac{4}{29}$

(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

$\frac{4}{6}$

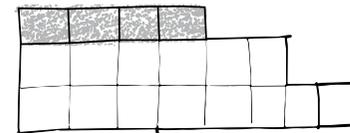
$\frac{4}{8}$

$\frac{4}{10}$

$\frac{4}{12}$

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

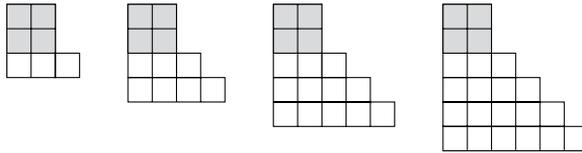
Draw it on squared paper.



Secret sequences sheet 1  
Level 5

Part 1

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



Fraction shaded:

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

(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?

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

Part 2

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

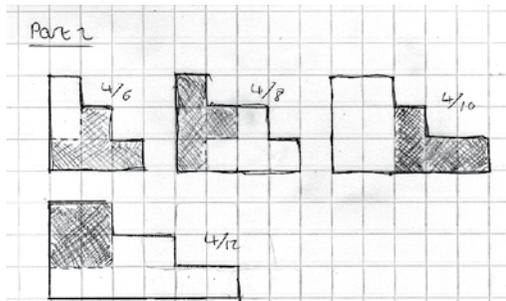
$\frac{2}{3}$        $\frac{1}{2}$        $\frac{2}{5}$        $\frac{1}{3}$

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

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

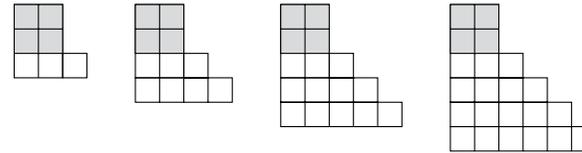
(b) What could the sequence of shapes that makes this secret sequence look like?

Draw it on squared paper.



Part 1

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



Fraction shaded:

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

(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?

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

Part 2

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

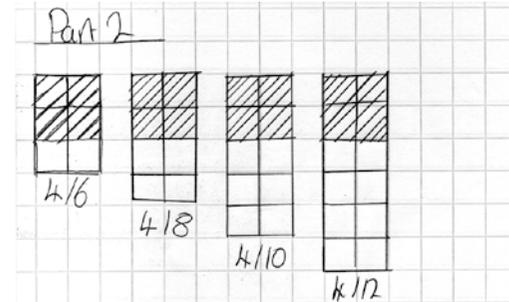
$\frac{2}{3}$        $\frac{1}{2}$        $\frac{2}{5}$        $\frac{1}{3}$

(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 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.

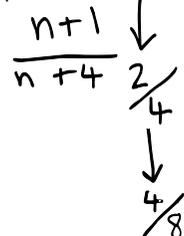
1st	2nd	3rd	4th	5th	6th	7th
$\frac{1}{10}$	$\frac{2}{15}$	$\frac{1}{6}$	$\frac{1}{5}$	$\frac{7}{30}$	$\frac{4}{15}$	$\frac{3}{10}$

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?



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?

