2016 national curriculum assessments

Key stage 2

2016 teacher assessment exemplification: end of key stage 2

Mathematics

Working at the expected standard

January 2016

Standards & Testing Agency

Contents

2016 teacher assessment exemplification: end of key stage 2 mathematics

Key stage 2 (KS2) mathematics teacher assessment (TA): using the interim TA frameworks, is statutory for 2016.

This document contains material that exemplifies all of the statements within the KS2 interim TA framework for 'working at the expected standard'.

Purpose of the exemplification materials

- Schools must use the interim TA frameworks and exemplification materials to ensure that their TA judgements are accurate.
- Schools must use the exemplification materials to ensure a secure understanding of national standards, as a point of reference for teachers when making their own TA judgements and to validate judgements across a school.

How to use the exemplification materials

To meet 'working at the expected standard' within the interim mathematics TA framework, a pupil must demonstrate attainment of **all** of the statements within the standard.

The judgement as to whether a pupil meets a statement is made across a collection of evidence and not on individual pieces of work. However, there needs to be sufficient evidence of consistent performance across several pieces of work, in order to demonstrate the pupil's understanding and application of the statement.

This collection consists of pieces of work drawn from different pupils. However, teachers will have a considerably broader body of evidence for each pupil from across the curriculum on which to base their judgements.

When making their TA judgements, teachers must:

- be familiar with the interim TA frameworks and exemplification materials
- ensure that for each pupil, they check and record whether there is sufficient evidence for each of the statements within the standard.

Interim teacher assessment framework at the end of key stage 2: mathematics

Key principles

- This statutory interim framework is to be used only to make a teacher assessment judgement at the end of the key stage following the completion of the key stage 2 curriculum. It is not intended to be used to track progress throughout the key stage.
- The interim framework does not include full coverage of the content of the national curriculum, but focuses on key aspects for assessment. Pupils achieving the standard within this interim framework will be able to demonstrate a broader range of skills than those being assessed.
- This interim framework is not intended to guide individual programmes of study, classroom practice or methodology.
- Teachers must base their teacher assessment judgement on a broad range of evidence from across the curriculum for each pupil.
- Individual pieces of work should be assessed according to a school's assessment policy and not against this interim framework.

The standard within the interim framework contains a number of 'pupil can' statements. To demonstrate that pupils have met the standard, teachers will need to have evidence that a pupil demonstrates consistent attainment of **all** the statements within the standard.

This framework is interim for the academic year 2015 to 2016 only.

Interim teacher assessment framework at the end of key stage 2: mathematics

Working at the expected standard

- The pupil can demonstrate an understanding of place value, including large numbers and decimals (e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits; 8.09 = 8 + 9/?; 28.13 = 28 + ? + 0.03).
- The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. 53 – 82 + 47 = 53 + 47 – 82 = 100 – 82 = 18; 20 × 7 × 5 = 20 × 5 × 7 = 100 × 7 = 700; 53 ÷ 7 + 3 ÷ 7 = (53 +3) ÷ 7 = 56 ÷ 7 = 8).
- The pupil can use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).
- The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1/5 or 0.2 or 20% of the whole cake).
- The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as 7/21 and that this is equal to 1/3; 15% of 60;1 1/2 + 3/4; 7/9 of 108; 0.8 x 70).
- The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).
- The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).
- The pupil can use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).

Exemplification

Statement

The pupil can demonstrate an understanding of place value, including large numbers and decimals (e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three given digits; 8.09 = 8 + 9/?; 28.13 = 28 + ? + 0.03).

02.11.15

L.O: To understand place value, including large numbers and decimals.

For the following pairs of numbers, which underlined digit is worth more? Circle the number.

1. 632,673 or 259,064 ✓
2. 865,431 or 684,501 ✓
3. 783,932 or 458,932 ✓

Response task - Create six digit numbers where the digit sum is five and the thousands digit is two.

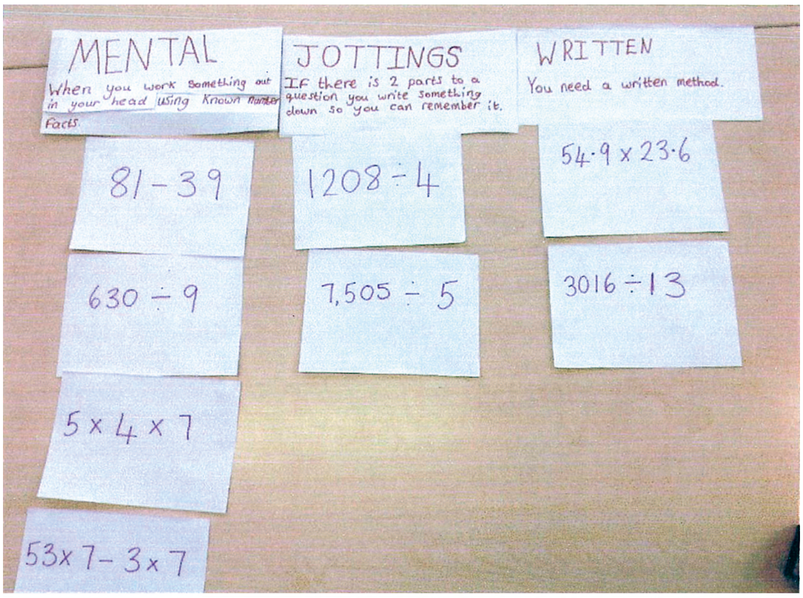
302,000
112,000

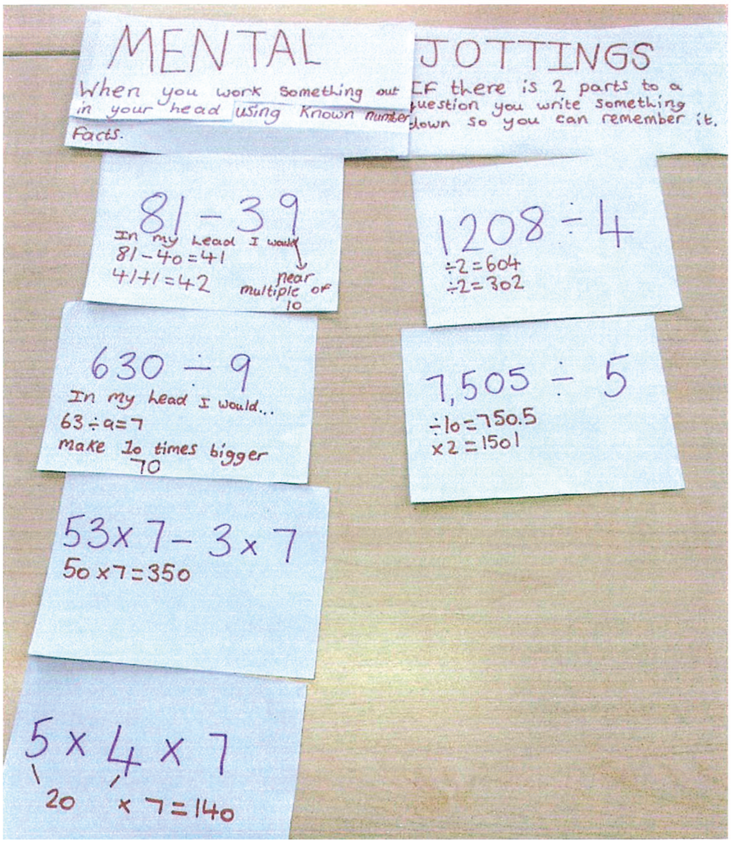
Context

The pupil was given 7 questions and was asked to identify which of the underlined digits had the larger value. The pupil successfully interpreted the value of the digit by looking at the position of the number.

Statement

The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. 53 – 82 + 47 = 53 + 47 – 82 = 100 – 82 = 18; 20 × 7 × 5 = 20 × 5 × 7 = 100 × 7 = 700; 53 ÷ 7 + 3 ÷ 7 = (53 + 3) ÷ 7 = 56 ÷ 7 = 8).





Context

Pupils were given calculations and asked to determine which could be done mentally, which required some notes and which needed a written method.

In pairs, the pupils were asked to sort the calculations into methods they would use to find the solution. They discussed how they would undertake each calculation . After sorting their calculations, they recorded the method they used underneath each calculation.

Statement

The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. $53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18$; $20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700$; $53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8$).

12 x 4 = 50 x 4
= 200

You are able to do this because 62 x 4 equals to 248 and if you take away 12 x 4, which's 48, it is equivalent to 50 x 4, which is 200.

03/12/15

L.O: Calculate mentally with efficient Strategies.

1. 43 − 51 + 27 = 19
I added 27 to 43 because I knew that it wasn't possible to take 51 from 43, therefore I decided to make the number bigger.

Check
43 +
27
70 −
51
19

2. 15 x 7 x 2 = 210
I multiplied 15 by 2 because it was easier to do that, then I multiplied 30 by 7 to reach the overall answer.

3. 81 − 39 = 42
I found it easier to raise 39 up by 2, then add 2 to my answer at the end, as I ~~to~~added ~~to~~ 2 at first, which led me to my answer 42.

4. 1094 + 906 = 2000
I worked out this equation by mentally working out how much more I need to add on to 1094, because I knew 906 was round about the answer, therefore it resulted as 2000.

5. 1208 ÷ 4 = 302
In this equation, I used my knowledge of multiplication and place value to help me reach my answer of 302; I thought about how many times 4 would go into 1200 and how many times it would go in 8, after I added them up to find my answer.

Question	Explanation of how I mentally calculated my answer.
43 - 51 + 27 = 19	I subtracted 51 from 43 which is -8 because it goes down. Then took away 8 from 27 to get 19. It is in negative numbers.
81 - 39 = 42	I knew that there was a difference of 42 because I added the amount needed to make 81 and is the same as 81 subtracted by 39. For example 45-40=5 the difference is 5.
1208 ÷ 4 = 302	First I did 8 divided by 4 then 4 divided by 1200 then added the two answers to get my final answer because they were in the table of 4.

Context

The pupil was asked to carry out a number of mental calculations that drew on the properties and rules of arithmetic. They were asked to explain the methods they used. The pupil has demonstrated the ability to apply commutative properties for addition and multiplication and adjusted the order of the operations to simplify the calculation.

Statement

The pupil can use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).

LO To solve problems involving measures

1\. 1 ounce of flour is equal to 28 grams.
How many grams of flour do I need if the recipe asks for 5 ounces?

1 ounce = 28g

$$\begin{array}{r} 28 \\ \times \quad 5 \\ \hline 140 \end{array}$$

you would need 140g of flour.

2\. A bottle holds 1 litre of lemonade.
Rachel fills 5 glasses with lemonade.
She puts 150 millilitres in each glass.
How much lemonade is left in the bottle?

$$\begin{array}{r} 150 \\ \times \quad 5 \\ \hline 750 \end{array}$$

1l = 1000ml

$$\begin{array}{r} 1000 \\ - \quad 750 \\ \hline 250 \end{array}$$

There is 250ml left in the bottle.

3\. 1 kilogram of grapes costs £5.80.
Megan buys 700 grams of grapes.
How much does she pay?

1kg of grapes = £5.80
Buys 700g
100g = 0.58

$$\begin{array}{r} 0.58 \\ \times \quad 7 \\ \hline 4.06 \end{array}$$

She pays £4.06

4\. I have used 3.64 kg of potatoes from a 5 kg bag.
How many grams do I have left?

1kg = 1000g

$$\begin{array}{r} 5000 \\ - \ 3640 \\ \hline 1360 \end{array}$$

you have 1360g left.

2016 KS2 mathematics exemplification

continued

5

I cut 72 cm off a plank of wood 1.8 metres long. How much is left (in metres)?

1m = 100cm

$$\begin{array}{r} 1.80 \\ -\ .72 \\ \hline 1.08 \end{array}$$

He had 1.08m of wood left.

6.

A full bottle of squash holds 750 millilitres. To make a jug of squash, you need to add 150ml of squash to each jug. How many bottles of squash will I need to buy in order to make 20 jugs of squash?

1 jug = 150 ml

20 jugs = 3000 ml

$$750 \overline{)3000} = 0004$$

750

1500

2250

3000

You will need 4 bottles of juice to make 20 jugs.

Next Step:
Chen, Megan and Sam have parcels. Megan's parcel weighs 1.2kg and Chen's parcel is 1500g and Sam's parcel is half the weight of Chen's parcel.
How much heavier is Megan's parcel than Sam's parcel?

Megan's parcel 1200g

Chen's parcel 1500g

Sam's parcel 750g

$$\begin{array}{r} 1200 \\ -\ 750 \\ \hline 450 \end{array}$$

Megan's parcel is 450g heavier then Sam's

Context

The pupil was given problems to solve, involving the use of formal written methods of calculation in different contexts.

The pupil demonstrated that they could use the formal written methods of calculation when solving problems that require such methods. They also proved that they were confident in switching between mental and written methods, showing that they were beginning to recognise when a mental method or a written method is a more appropriate method to use.

Statement

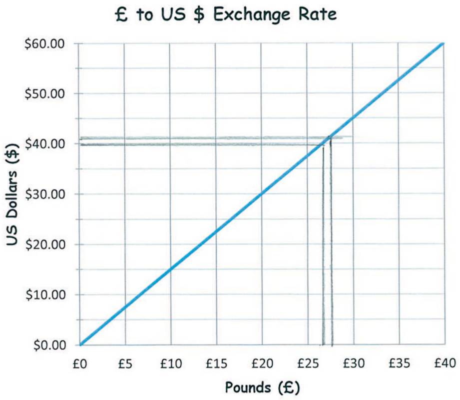
The pupil can use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).

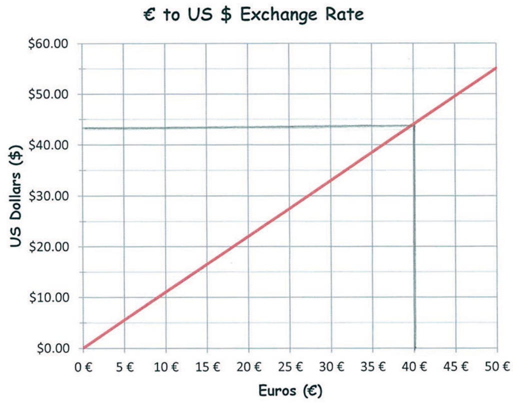
A website sells party outfits at the following prices in these places:

Website UK	£27.50	\$41.00
Website US	\$45.00	
Website Europe	40 €	\$43.00

Using the information below, calculate the cost of seven party outfits bought at the cheapest price.

How much would you save, compared to buying at the most expensive price?





I looked at my conversion chart and worked out £27.50 by drawing lines to help me. Then I did the same for the next two. I worked out to use dollars because on both of the charts it has dollars. I found out that the smallest one (cheapest) was £27.50 (\$41.00). The cheapest site to use is Website UK, then Website Europe and then Website US. Now I am going to *£27.50 by 7. I am going to multiply £27.50 by 100 to convert pounds into ~~pense~~ pence.

*multiply

	2	7	5	0p	
x				7	
1	9	2	5	0p	
1	5	3			

19250p ÷ 100 = £192.50

The cost for 7 party outfits ~~are~~ is £192.50.

$$7 \overline{)\,1\,9\,2\,5\,0}\quad 0\,2\,7.5\,0$$

The most expensive party outfit is \$45.00. I am now going to convert it into pounds which is £30.

£30 x 7 = £210

continued

$$
\begin{array}{r}
£210.00 \\
-\ £192.50 \\
\hline
£017.50
\end{array}
$$

I am going to check using the inverse operation (addition).

$$
\begin{array}{r}
£192.50 \\
+\ £\ \ 17.50 \\
\hline
£210.00
\end{array}
$$

I found out that you would save £17.50 if you went on Website UK to buy the ~~to~~ party outfits ~~insted~~ instead of Website US.

Context

The pupils were asked to determine whether using the internet to purchase goods in different currencies was a good way to save money.

The pupils used and interpreted conversion graphs to find the relative costs of goods in Dollars, Euros and Pounds. They demonstrated an ability to use formal methods of calculation when working out costs. They compared the cost of the goods in one currency in order to find the cheapest way to purchase them online.

Statement

The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1/5 or 0.2 or 20% of the whole cake).

LO: I am learning to apply my knowledge of fractions, decimals and percentages.

Complete the table below showing the equivalent fractions, decimals and percentages.

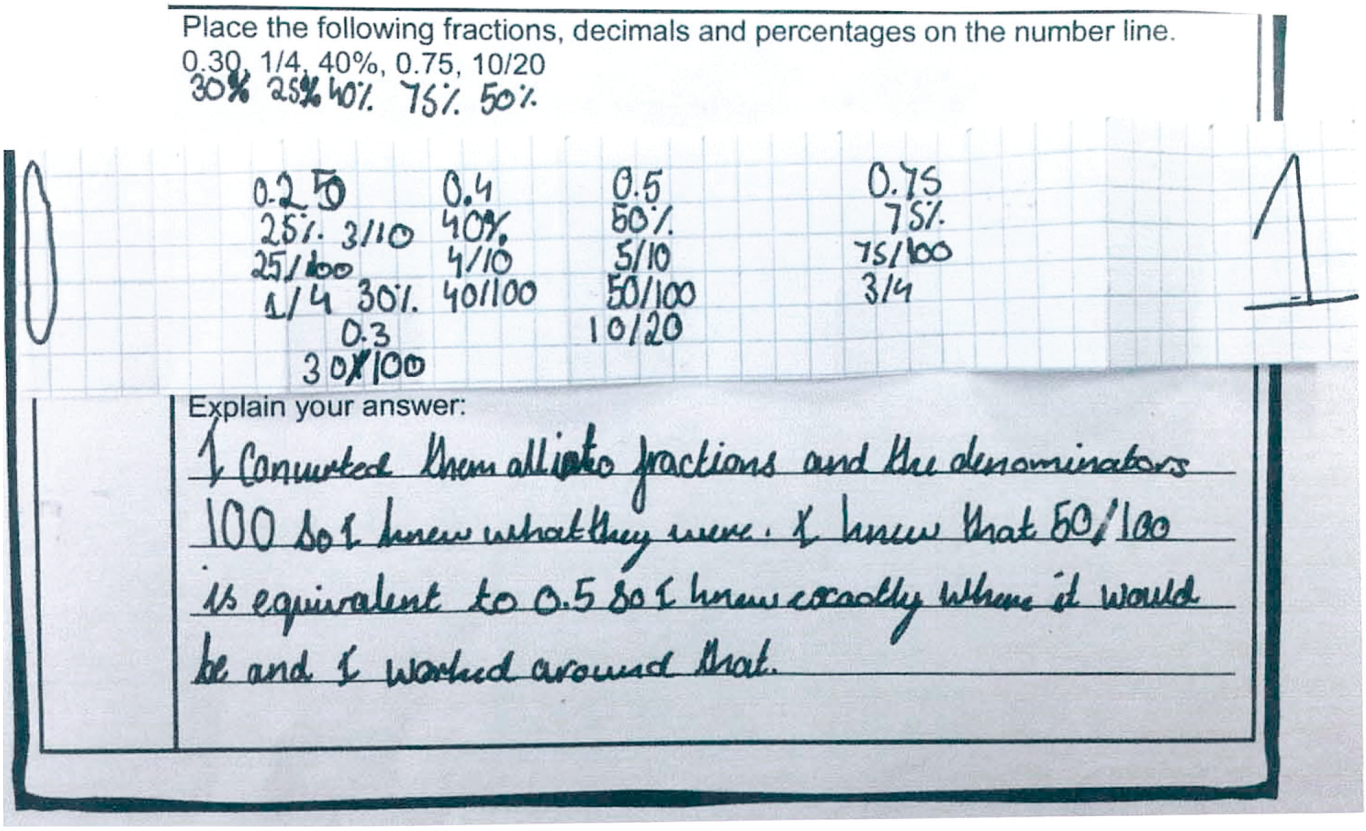
	Fraction	Decimal	Percentages
	1/2	0.5	50%
17/25	68/100	0.68	68%
	95/100	0.95	95%
14\50	34/100	0.34	34%
	33/100	0.33	33%

Context

The pupil was given a table to complete, which asked them to convert between fractions, decimals and percentages. The pupil showed an understanding of the relationship between fractions, decimals and percentages and could express each in its equivalent form. The pupil could also simplify fractions, as demonstrated by the fractions written at the side of the table.

Statement

The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1/5 or 0.2 or 20% of the whole cake).


Place the following fractions, decimals and percentages on the number line.
0.30, 1/4, 40%, 0.75, 10/20
30% 25% 40% 75% 50%

0

0.25 25% 25/100 1/4

3/10 30% 0.3 30/100

0.4 40% 4/10 40/100

0.5 50% 5/10 50/100 10/20

0.75 75% 75/100 3/4

1

Explain your answer:
I converted them all into fractions and the denominators 100 so I knew what they were. I knew that 50/100 is equivalent to 0.5 so I knew exactly where it would be and I worked around that.

Context

The pupil was asked to convert tenths along a number line into a variety of fractions, percentages and decimals. The pupil identified tenths on a 0 to 1 number line by folding a strip of paper into 10. They then recorded the fractions along the number line and offered an explanation of how they carried out the conversion process. They demonstrated an understanding of the importance of the ten and tenths in the relationships between the equivalent forms.

Statement

The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as 7/21 and that this is equal to 1/3; 15% of 60; 1 1/2 + 3/4; 7/9 of 108; 0.8 × 70).

Tom says to Lucy, 'Last month I saved 0.25 of my pocket money and this month I saved 2/5 of my pocket money, so altogether I've saved 60% of my pocket money.' Is what Tom says true or false? Explain your decision below.

The answer is false because 0.25 of his pocket money is 25%. and $\frac{2}{5}$ of his pocket money is 40%. So 25% + 40% = 65% and not 60%. I know this because I converted them into percentages to help. This is not the only answer there is another answer which is 32.5%. You can get this answer because 2 months would be $\frac{65}{200}$ or 65% out of 200%. So I had to halve the percentage out of 200%. to get what it would be out of 100%.

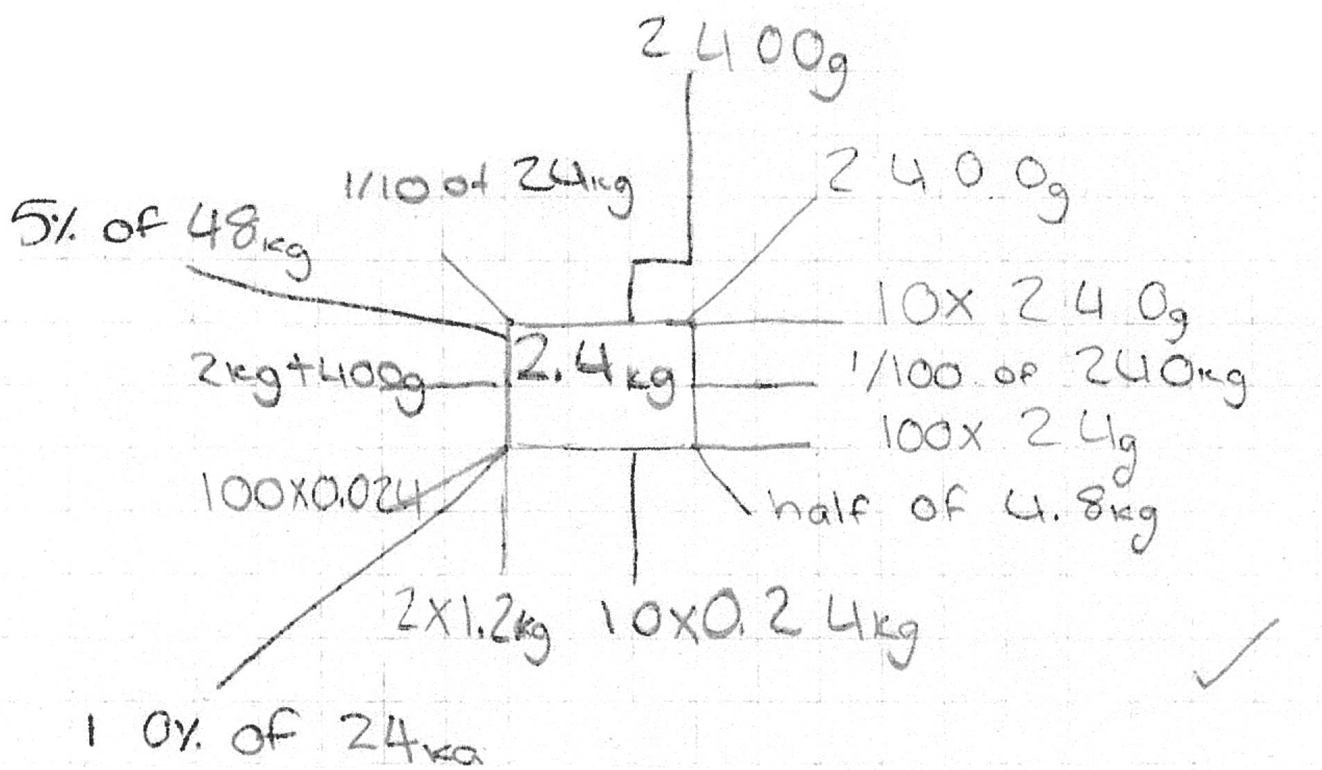
Context

The pupil interpreted a problem where the information was given in fraction, decimal and percentage forms.

The pupil demonstrated that they can interpret, calculate and use fractions, decimals and percentages to determine whether a statement is true or false. They described how they arrived at their decision in order to justify their approach.

Statement

The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as 7/21 and that this is equal to 1/3; 15% of 60; 1 1/2 + 3/4; 7/9 of 108; 0.8 × 70).



Context

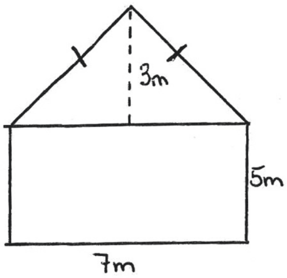
The pupil started with a mass of 2.4kg and described this quantity in terms of other quantities.

The pupil demonstrated an understanding of how fractions, decimals and percentages can be used to show how quantities can be scaled up or down in order to give a required quantity and convert between units of mass as necessary.

Statement

The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).

Substitute values into simple formula to solve problems.



I would like to put bark chippings down on this area of the playground. Could you calculate the area to find out how much I need?

Area of a rectangle = $l \times w$

Area of a triangle = $\frac{b \times h}{2}$

Rectangle

$5m \times 7m = 35m^2$

Triangle

$7m \times 3m = 21m^2$

$21m^2 \div 2 = 10.5m^2$

$$\begin{array}{r} 35 \\ +\ 10.5 \\ \hline 45.5m^2 \end{array}$$

The total area is $45.5m^2$

Context

The pupil is set the problem of calculating the area of bark chippings needed to cover an area of ground. The pupil demonstrated that they could substitute values into the formulae for the area of a rectangle and a triangle in order to solve the problem.

Statement

The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).

Celsius to fahrenheit

$\boxed{C \times 1.8 + 32 = F}$

30°C

$30 \times 1.8 = 54$

$$\begin{array}{r} + \; 54 \\ 32 \\ \hline 86 \\ \hline \end{array}$$

30°C $\times 1.8 + 32 = 86$°F ✓

86°F ✓

40°C ✓

$40 \times 1.8 = 72$

$$\begin{array}{r} + \; 72 \\ 32 \\ \hline 104 \\ \hline \end{array}$$

✓ 40°C $\times 1.8 + 32 = 104$°

104°F

12°C

12°C $\times 1.8 + 32 = 53.6$°F

$12 \times 1.8 = 21.6$

$$\begin{array}{r} + \; 32 \\ 21.6 \\ \hline 53.6 \\ \hline \end{array}$$

53.6°F ✓

Context

The pupil was asked to use a formula when converting temperatures from Centigrade to Fahrenheit. The pupil demonstrated that they could use the formula to convert temperatures expressed in C to temperatures in F. They carried these out systematically as a two-step calculation.

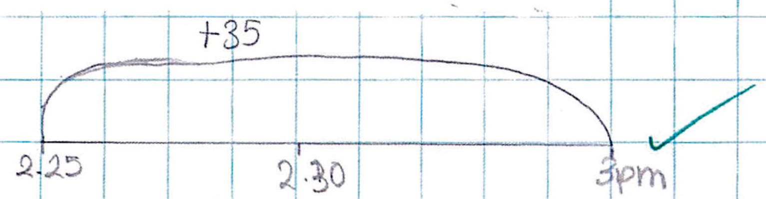
Statement

The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).

4.11.15

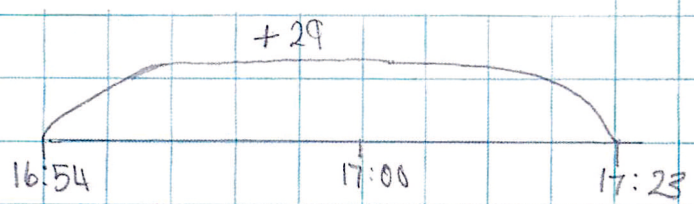
LO To solve problems involving time.

1. Liam hires a bike. He has to return it by 3 pm. The time is 2:25pm. How many minutes has he got left?



Liam has 35 minutes left.

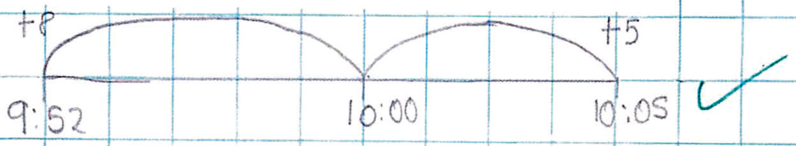
2 A train leaves a station at 16:54. It stops at the first station at 17:23. How long did it take to get to the first stop?

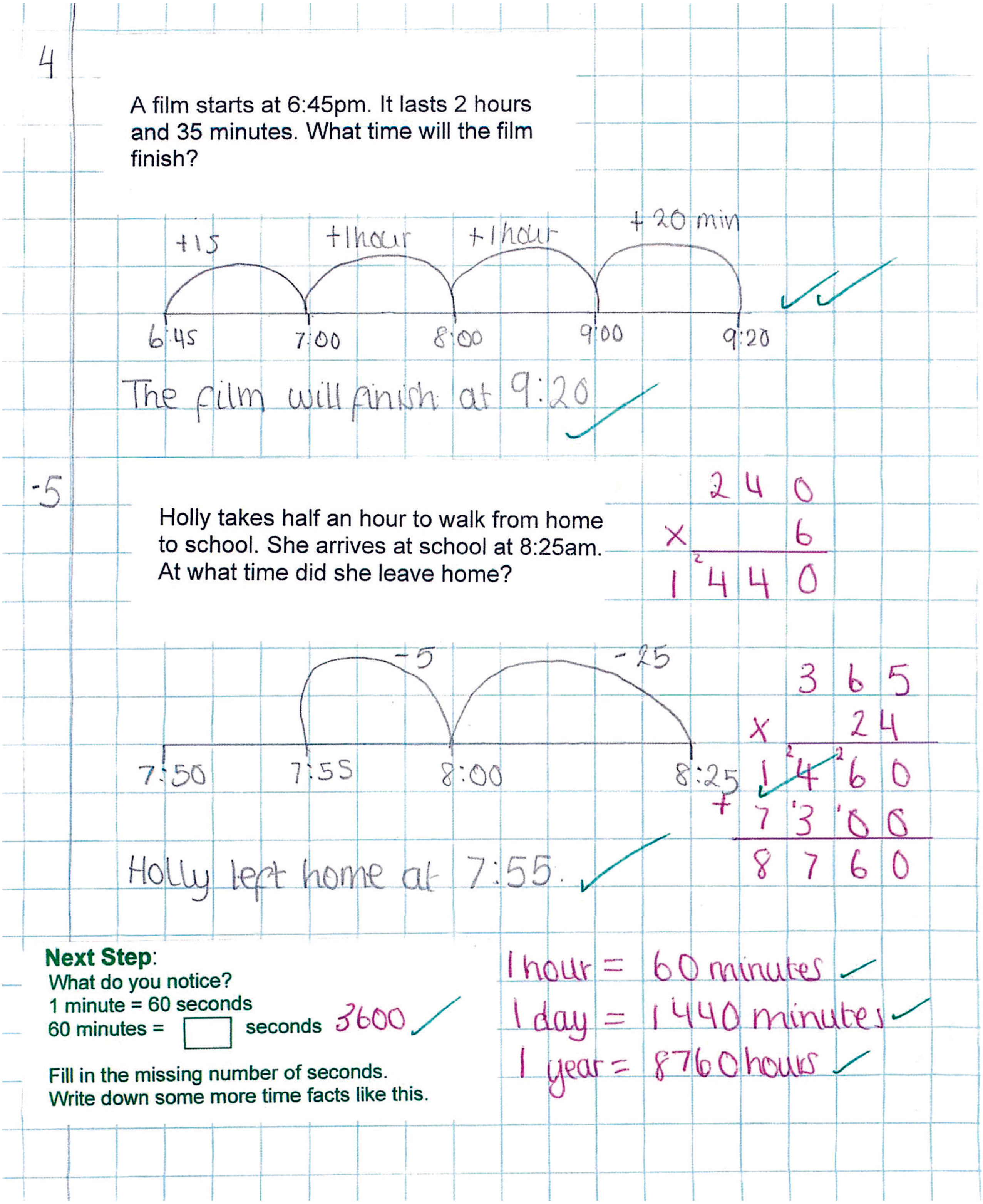


It took 29 minutes to get to the first

3 Seb has to see the doctor at 10:05 am. He gets to the doctor's surgery at 9:52 am. How many minutes early is he?

Seb was 13 minutes early





4

A film starts at 6:45pm. It lasts 2 hours and 35 minutes. What time will the film finish?

+15 +1hour +1hour +20 min

6:45 7:00 8:00 9:00 9:20

The film will finish at 9:20

5

Holly takes half an hour to walk from home to school. She arrives at school at 8:25am. At what time did she leave home?

$$\begin{array}{r} 240 \\ \times\quad 6 \\ \hline 1440 \end{array}$$

−5 −25

7:50 7:55 8:00 8:25

$$\begin{array}{r} 365 \\ \times\quad 24 \\ \hline 1460 \\ +\ 7300 \\ \hline 8760 \end{array}$$

Holly left home at 7:55.

Next Step:
What do you notice?
1 minute = 60 seconds
60 minutes = $\boxed{}$ seconds 3600

Fill in the missing number of seconds.
Write down some more time facts like this.

1 hour = 60 minutes
1 day = 1440 minutes
1 year = 8760 hours

Context

The pupil was asked to solve a number of time-related problems involving calculations of time intervals. The pupil demonstrated that they could read and interpret time and could also partition an interval of time to make complements to 60 minutes or one hour. The pupil was asked a supplementary question, motivating the pupil to find how many minutes there are in a day and the number of hours in a year, using formal methods of multiplication to do so.

Statement

The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).

The ingredients listed in a fruit salad recipe are as follows:
30% apple, 35% orange, 20% banana, 10% strawberry
and the rest pineapple.
List the total mass of each fruit, in g, in a 0.75kg fruit salad?

09.11.15

LO: To solve problems involving measures.

1. 0.75kg = 750g

Strawberry = 10% 750 ÷ 10 = 75g

apple = 30% 75 × 3 = 225 225g

banana = 20% 75 × 2 = 150 150g

orange = 35% 37.5 ; 2 | 75.00 225.0 + 37.5 = 262.5g

pineapple = 37.5g -> 5%

fruit salad:

Strawberry = 75g
banana = 150g
orange = 262.5g
pineapple = 37.5g
apple = 225g

Context

The pupil was given the ingredients for a fresh fruit salad in percentages and asked to solve a problem involving metric measures for weight. The pupil was able to calculate the quantities involved using formal and informal methods of calculations.

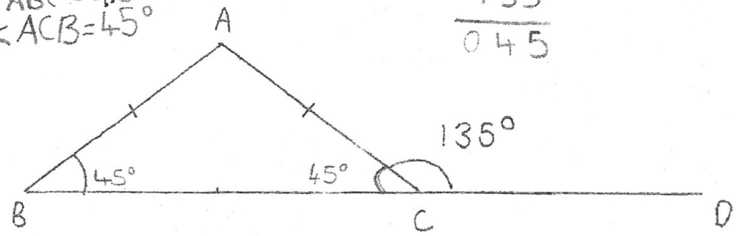
Statement

The pupil can use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).

1. ABC is an isosceles triangle in which AB = AC
Find ∠ACB and ∠ABC

∠ABC = 45°
∠ACB = 45°

$$\begin{array}{r} 180 \\ -\ 135 \\ \hline 045 \end{array}$$

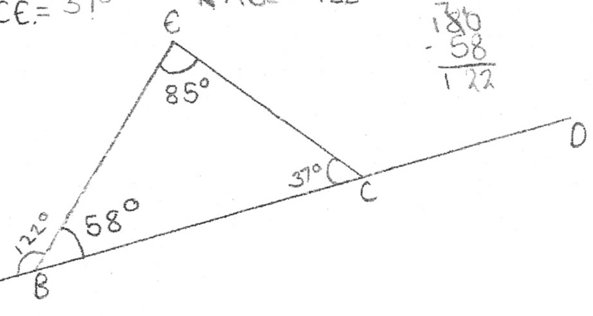


2. BEC is a scalene triangle. Find ∠ABE and
∠BCE = 37°
∠ABE = 122°

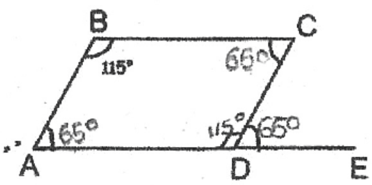
$$\begin{array}{r} 180 \\ -\ 58 \\ \hline 122 \end{array}$$

$$\begin{array}{r} 85 \\ +\ 58 \\ \hline 143 \end{array}$$

$$\begin{array}{r} 180 \\ -\ 143 \\ \hline 037 \end{array}$$



find missing angles in more complex diagrams



ABCD is a parallelogram

AE is a straight line

Find the missing angles

$$\begin{array}{r} 180 \\ -\ 115 \\ \hline 065 \end{array}$$

∠ABC = 115°
∠DAB = 65°
∠CDA = 115°
∠EDC = 65°
∠BCD = 65°

Opposite angles are equal

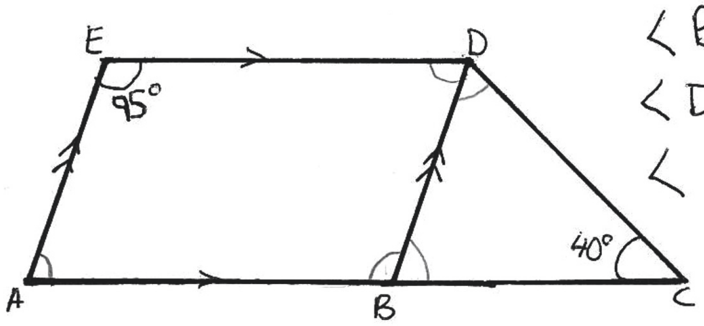
2016 KS2 mathematics exemplification

$\angle ABD$ = 95°

$\angle BDE$ = 85°

$\angle DEA$ = 95°

$\angle EAB$ = 85°



$\angle DBC$ = 85° $\angle BCD$ = 40° $\angle CDB$ = 55°

How do you know?

Opposite angles in a parallogram are equal. Angles on a straight line equal 180°. I took 95° away from 180° as $\angle ABC$ is a straight line. Because the sum of angles in a triangle is 180°, I added 85° and 40° and the took it away from 180°.

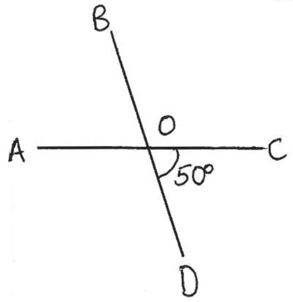
180° − 95° = 085°

180° − 85° = 095°

85° + 40° = 125°

180° − 125° = 55°

use mathematical reasoning to find missing angles.



∠AOB = 50° ∠BOC = 130°

∠COD = 50° ∠DOA = 130°

How do you know?

Vertically opposite angles are equal. I added 50° and 50° together to get 100°. Then I took it away from 360° as the sum of angles around a point is 360° Then I divided it by two because the angles are vertically opposite. To check my answer I added them together.

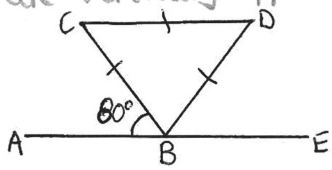
50° + 50° = 100°

360° − 100° = 260°

260 ÷ 2 = 130

130 + 130 + 50 + 50 = 360

BCD is an equilateral triangle.



∠ABC = 80° ∠BCD = 60°

∠CDB = 60° ∠DBC = 60° ∠DBE = 40°

How do you know?

∠ABE is on a straight line. There is 180° on a straight line so I would take 80 away from a, 180°, which is 100°. I know that in an equilateral triangle each angle is 60°. If on the straight line the two angles are 80° and 60°, the other angle must be 40°.

180° − 80° = 080°

100° − 60° = 040°

Context

The pupil was asked to find the size of missing angles in a variety of shapes, including different types of triangles and a parallelogram.

The pupil demonstrated that they understood how to name and read an angle, using 3 letters and the angle symbol. They applied their reasoning to find missing angles in the diagrams and recognised when opposite angles were equal. They used the property that the angles of a triangle equal 180˚ and are beginning to see that the angles between parallel lines have particular properties.

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