



Week 2 Word Problems

Name: _____

Class: _____

Date: _____

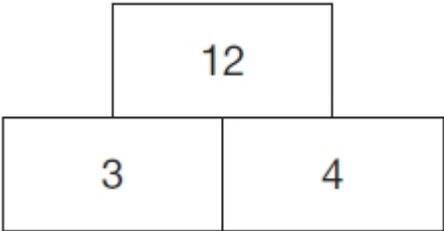
Time: **37 minutes**

Marks: **37 marks**

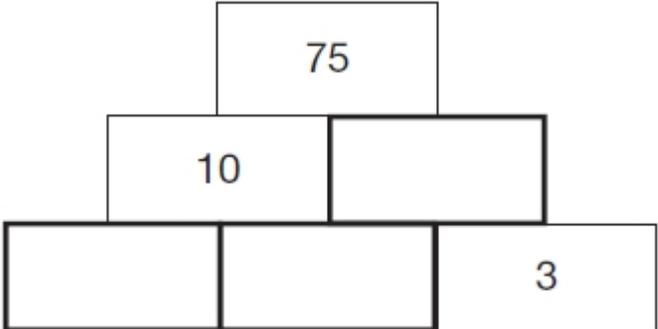
Comments:

3

In this tower, two numbers are **multiplied** to give the number above.



Write the missing numbers in the tower below to make it correct.



2 marks

4

Amy thought of a number.

She added 0.5 to her number and then doubled the result.

Then she subtracted 0.5 and doubled the new result.

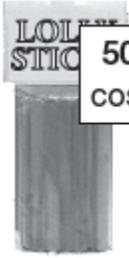
Her final answer was 61

What number did Amy start with?

Show your method

2 marks

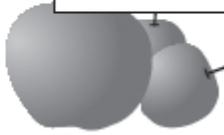
One toffee apple needs:
1 stick,
100 g of sugar,
1 apple.



50 sticks
cost £6.25



1 kg of sugar
costs £0.99



100 apples
cost £22.50

Children buy just enough sticks, sugar and apples to make **100** toffee apples.

They sell all 100 toffee apples for **£1 each**.

The profit goes to charity.

Work out how much money goes to charity.

Show your method

£

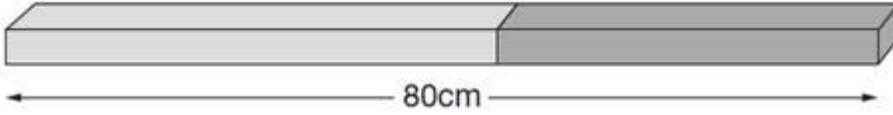
3 marks

8

Alfie has two sticks.

He puts them end to end.

Not actual size



One stick is **10cm longer** than the other stick.

How long are the two sticks?

Show your method

The diagram shows a large grid for working out the solution. On the left side of the grid, there is a rounded rectangular box containing the text "Show your method". On the right side of the grid, there are two horizontal rectangular boxes, one above the other, each containing the text "cm".

2 marks

9

(a) 1 kilogram of grapes costs £5.80

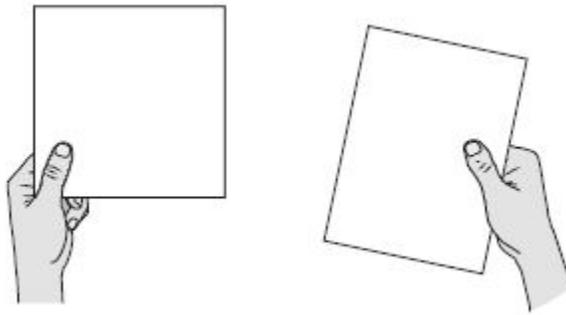
Megan buys 700 grams of grapes.

How much does she pay?

£

1 mark

11



A square tile measures 20 cm by 20 cm.

A rectangular tile is 3 cm **longer** and 2 cm **narrower** than the square tile.

What is the **difference in area** between the two tiles?

Show your method

cm²

A large grid for showing the method to find the difference in area between the two tiles. The grid is 20 units wide and 20 units high. A rounded rectangle on the left side of the grid contains the text "Show your method". A smaller rectangle in the bottom right corner of the grid contains the text "cm²".

3 marks

12

The area of a rugby pitch is 6,108 square metres.

A football pitch measures 112 metres long and 82 metres wide.

How much larger is the area of the football pitch than the area of the rugby pitch?

Show your method

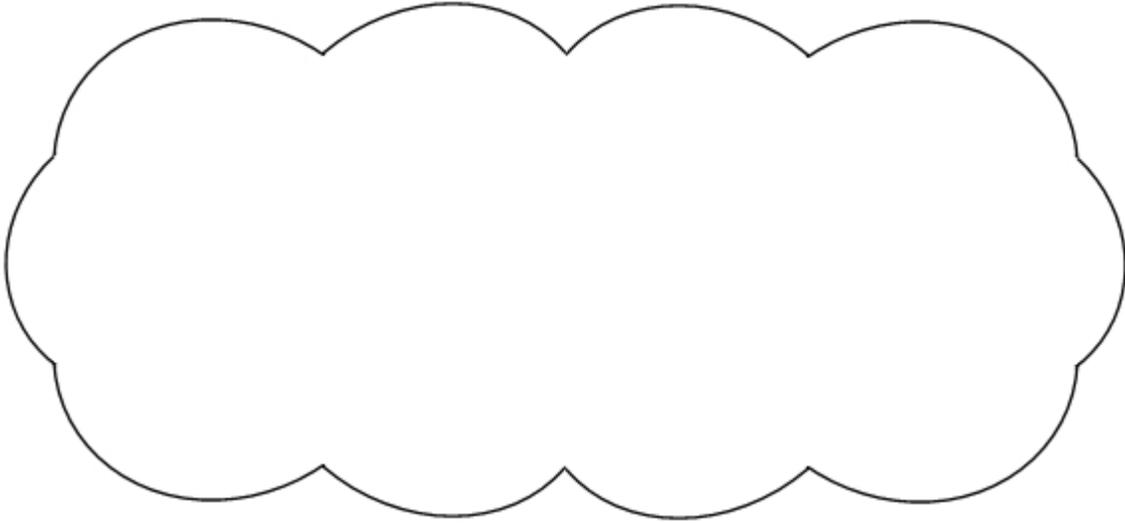
square metres

3 marks

13

$$5,542 \div 17 = 326$$

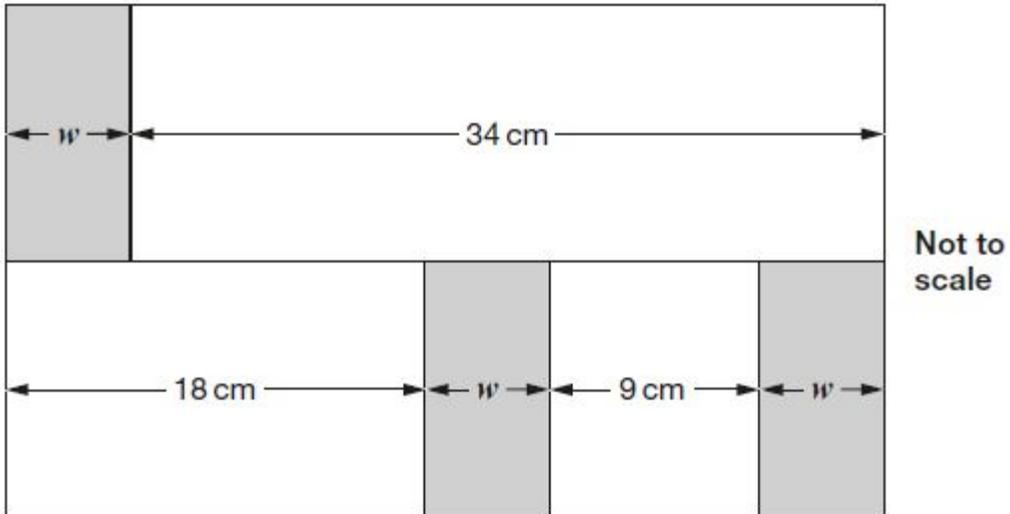
Explain how you can use this fact to find the answer to 18×326



1 mark

14

In this diagram, the shaded rectangles are all of equal width (w).



Calculate the width (w) of one shaded rectangle.

Show your method

cm

2 marks

15

Lara had some money.

She spent £1.25 on a drink.

She spent £1.60 on a sandwich.

She has **three-quarters** of her money left.

How much money did Lara have to **start with**?

Show your method

£

2 marks

17

Miss Mills is making jam to sell at the school fair.

Strawberries cost £7.50 per kg.

Sugar costs 79p per kg.

10 glass jars cost £6.90

She uses 12 kg of strawberries and 10 kg of sugar to make 20 jars full of jam.

Calculate the total cost to make 20 jars full of jam.

Show your method

£

3 marks

Mark schemes

1

525

! Measures

2

or

175 seen (*the weight of the elephant*)

OR

Shows or implies a complete correct method, eg:

- $\frac{700}{4} = 170$ (*error*)
170 × 3

1

[2]

2

Award **TWO** marks for the correct answer of

Mina

Kristy

Seb

If the answer is incorrect, award **ONE** mark for:

- two numbers correct

OR

- 14 **AND** 9 **AND** 7 with some or all attributed to the wrong child

OR

- evidence of appropriate working, eg

$$30 - 5 + 2 = 27$$

$$\text{Kirsty} = 27 \div 3 = \text{wrong answer}$$

$$\text{Mina} = \text{wrong answer} + 5$$

$$\text{Seb} = \text{wrong answer} - 2$$

*Working must be carried through to reach an answer for the award of **ONE** mark.*

OR

- a 'trial and improvement' method, eg

$$10 + 5 + 3 = 18$$

$$20 + 15 + 13 = 48$$

$$15 + 10 + 8 = 33$$

*A 'trial and improvement' method must show evidence of improvement, but a final answer need not be reached for the award of **ONE** mark*

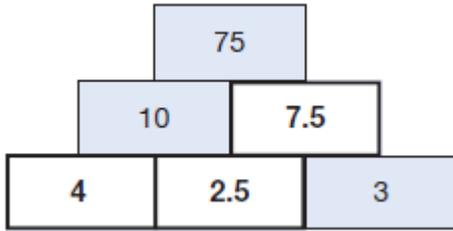
Up to 2
U1

[2]

3

Gives the three correct numbers in their correct positions, ie:

•



Accept unambiguous indication

Accept equivalent fractions, eg:

• $7\frac{5}{10}$ for 7.5

2

or

Gives two correct numbers in their correct positions

1

[2]

4

Award **TWO** marks for the correct answer of 15

If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg:

■ $61 \div 2 = 30.5$

$30.5 + 0.5 = 31$

$31 \div 2 = 15.5$

$15.5 - 0.5 = \text{wrong answer}$

OR

■ $61 \div 2 = 30.5$

$30.5 - 0.5 = 30$ (step error)

$30 \div 2 = 15$

$15 - 0.5 = 14.5$ (wrong answer)

*Working must be carried through to reach an answer for the award of **ONE** mark.*

Up to 2m

[2]

5

Award **TWO** marks for the correct answer of

cake

40 p

AND biscuit

25 p

If the answer is incorrect, award **ONE** mark for:

- answers reversed, ie:

cake = 25p **AND** biscuit = 40p

OR

- one of the two costs correct

OR

- for evidence of appropriate working, eg
cost of cake + biscuit + biscuit = 90p
cake = biscuit + 15p
 $90p - 15p = 75p$
 $75p \div 3 + 15p = \text{wrong answer}$

*Accept for **ONE** mark 0.40p **OR** £40*

***AND** 0.25p **OR** £25 as evidence of appropriate working.*

*Working must be carried through to reach
an answer for the award of **ONE** mark.*

Up to 2
U1

[2]

6

3 **AND** 5 **AND** 7

Numbers may be given in any order.

[1]

7Award **THREE** marks for the correct answer of £55.10Award **TWO** marks for a complete correct method with one arithmetic error, eg

■	Sticks	£12.50
	Sugar	£ 9.99 (error)
	Apples	+ <u>£22.50</u>
	Total	£44.99
	Profit	£100.00
		– <u>£ 44.99</u>
		£ 55.01

ORIf the answer is incorrect, award **TWO** marks for evidence of a correct total for all the ingredients, eg

■	Sticks	£12.50
	Sugar	£ 9.90
	Apples	+ <u>£22.50</u>
	Total	£44.99

ORAward **ONE** mark for sight of £12.50 **and** £9.90

Up to 3

[3]**8**Award **TWO** marks for the correct answer of 45 **AND** 35If the answer is incorrect, award **ONE** mark for:

- either 35 **OR** 45

OR

- evidence of appropriate working, eg

$$80 - 10 = 70$$

$$70 \div 2 = 35$$

$$35 + 10 = \text{wrong answer}$$

Numbers may be given in either order.

*Working must be carried through to reach an answer for the award of **ONE** mark.*

Up to 2m
U1**[2]**

9

(a) £4.06

! Money
See guidance

1

(b) 200

! Measures
See guidance

2

or

Gives an answer of 180 or 184 or 184.4(...)

OR

Shows or implies a complete correct method, eg:

- $1000 \times 2.49 \div 13.50$
- $\text{£}13.50 \div \text{£}2.49 = 5.42$
 $1000 \div 5.42$

- $1350 \div 1000 = 1.35$
 $249 \div 1.35$

- $\text{£}1.35 = 100$
 $\text{£}2.70 = 200$

! Inconsistent units
Within an otherwise correct method, condone
eg, for 1 mark accept:

- $(\text{£})13.50 \div 1000 = 1.35(p)$
 $(\text{£})2.49 \div 1.35(p)$
- $(\text{£})13.50 \div 1000 = (\text{£})0.0135$
 $249(p) \div (\text{£})0.0135$

1

[3]

10

Award **TWO** marks for the correct answer of 26

If the answer is incorrect award **ONE** mark for evidence of appropriate working which contains not more than **ONE** arithmetical error, eg:

*Working must be carried through to reach an answer for the award of **ONE** mark.*

*In all cases, accept follow-through of **ONE** error in working.*

- Long divisional algorithm

wrong answer

$$\begin{array}{r} 36 \overline{) 936} \\ \underline{-720} \\ 216 \\ \underline{-216} \\ 0 \end{array}$$

Variations on algorithms are acceptable, provided they represent a viable and complete method.

***Do not** award any marks if the final answer is missing.*

- Short division algorithm

wrong answer

$$36 \overline{) 93^{21} 6}$$

Short division methods must be supported by evidence of appropriate carrying figures to indicate use of division algorithm and be a complete method.

- Repeated addition/subtraction methods, eg

$$\begin{array}{r} 936 \\ \underline{-360} \quad 10 \times 36 \\ 576 \\ \underline{-360} \quad 10 \times 36 \\ 216 \\ \underline{-216} \quad 6 \times 36 \\ \text{wrong answer} \end{array}$$

***No mark** is awarded for addition/subtraction the wrong number of times.*

- Factorisation methods, eg:

$$936 \div 9 = 104$$

$$104 \div 4 = \text{wrong answer}$$

Up to 2

[2]

11

Award **THREE** marks for the correct answer of 14

If the answer is incorrect, award **TWO** marks for:

- sight of 414 as evidence of 23×18 completed correctly

OR

- evidence of an appropriate method with no more than one arithmetic error, e.g.

$$20 \times 20 = 400$$

$$\begin{array}{r} 23 \\ \times 18 \\ \hline 230 \\ 184 \\ \hline 314 \text{ (error)} \end{array}$$

$$400 - 314 = 86$$

Award **ONE** mark for evidence of an appropriate method.

*Answer need not be obtained for the award of **ONE** mark.*

A misread of a number may affect the award of marks. No marks are awarded if there is more than one misread or if the mathematics is simplified.

***TWO** marks will be awarded for an appropriate method using the misread number followed through correctly to a final answer.*

***ONE** mark will be awarded for evidence of an appropriate method using the misread number followed through correctly with no more than one arithmetic error.*

Up to 3m

[3]

12

Award **THREE** marks for the correct answer of 3076 square metres.

If the answer is incorrect, award **TWO** marks for:

- sight of 9184 as evidence of the multiplication for the first step completed correctly.

OR

- evidence of an appropriate method which contains no more than **ONE** arithmetical error, e.g:

$$\begin{array}{r} 112 \\ \times \underline{82} \\ 8960 \\ \underline{224} \\ 9187 \text{ (error)} \end{array}$$

$$\begin{array}{r} 9187 \\ - \underline{6108} \\ 3079 \end{array}$$

- Award **ONE** mark for evidence of an appropriate method which contains more than **ONE** arithmetical error.

Do not award any marks if the error is in the place value of the multiplication, e.g. the omission of the final zero when multiplying by tens, e.g.

$$\begin{array}{r} 112 \\ \times \underline{82} \\ 896 \\ \underline{224} \\ \text{wrong answer} \end{array}$$

Commentary: As well as a range of 1 mark and 2 mark questions, one of the questions in a suite of tests may now attract three marks. The solution to a 3 mark question may involve more steps or, as in this example, more complex calculations.

Up to 3m

[3]

13

An explanation that shows that 5,868 can be made by adding 326 to 17×326 , e.g.

- '5542 + 326 = 18 × 326'
- '18 × 326 is 326 more than 5,542'
- 'Because this is the same as $17 \times 326 = 5542$ so add one more 326 to get the answer'
- 'You add 326 to 5,542 and your answer will be correct'
- 'Because you can add 326 to the answer of 17×326 '
- '5542 + 326'.

Do not accept an explanation that simply calculates
 $326 \times 18 = 5,868$.

Do not accept vague or incomplete, or incorrect explanations, e.g.

- 'You could add another 326'
- 'The difference between 17 and 18 is 1 so you add 326 and that is one more'
- 'Because if you turn the question around you would see that $17 \times 326 = 5542$ so all you need to do is times the number one more time'
- '5,542 + 326 because it is one more'.
- $5868 - 326 = 5542$.

[1]**14**

Award **TWO** marks for the correct answer of 7

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $18 + 9 + 2$ widths = $34 + 1$ width
 $27 + 2$ widths = $34 + 1$ width
 $27 + 1$ width = 34
 $34 - 27$

OR

- $34 - (18 + 9)$

*Answer need not be obtained for the award of **ONE** mark.*

*Award **ONE** mark for a method which uses algebraic representation correctly, e.g.*

- $34 + w = 18 + w + 9 + w$
 $34 + w = 27 + w + w$

Up to 2m

[2]

15

Award **TWO** marks for the correct answer of £11.40.

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $£1.25 + £1.60 = £2.85$
 $£2.85 \times 4$

*Accept for **ONE** mark an answer of £1,140 **OR** £1,140p **OR** £11.4 as evidence of an appropriate method.*

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

16

Award **TWO** marks for the correct answer of 3.

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $2.5 \times 6 = 15$
 $15 \div 5$

*Answer need not be obtained for the award of **ONE** mark.*

*Misreads are **not** allowed.*

Up to 2m

[2]

17

Award **THREE** marks for the correct answer of £111.70.

If the answer is incorrect, award **TWO** marks for:

- sight of £90 **AND** £7.90 **AND** £13.80 as all multiplication steps completed correctly.

*Accept for **TWO** marks, sight of 9,000p **AND** 790p **AND** 1,380p as all multiplication steps completed correctly.*

OR

evidence of an appropriate complete method with no more than one arithmetic error, e.g.

$$\begin{array}{r} 7.50 \\ \times 12 \\ \hline 88.80 \\ \text{(error)} \end{array} \quad \begin{array}{r} 79 \\ \times 10 \\ \hline 790 \end{array} \quad \begin{array}{r} 6.90 \\ \times 2 \\ \hline 13.80 \end{array}$$

$$88.80 + 7.90 + 13.80 = 110.50$$

Award **ONE** mark for evidence of an appropriate complete method.

*Answer need not be obtained for the award of **ONE** mark.*

A misread of a number may affect the award of marks. No marks are awarded if there is more than one misread or if the mathematics is simplified.

***TWO** marks will be awarded if an appropriate complete method with the misread number is followed through correctly.*

***ONE** mark will be awarded for:*

- *all multiplication steps completed correctly with the misread number.*

OR

- *evidence of an appropriate complete method with the misread number followed through correctly with no more than one arithmetic error.*

Up to 3m

[3]