Decimals – including money (F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

Name:	Mel @ JustMaths
Total Marks:	

1. (a) How many 20p coins would you need to make up £7000?

£1 = 5 coins

×7000 ↓ 7000 ↓ ×7000

(a) ..... 35,000 ..... [2]

(b) Each 20p coin weighs 5 g.

Lizzie says

I can lift £7000 worth of 20p coins.

Is Lizzie's claim reasonable? assuming each coin is EXACTLY 5g

Show your working and state any assumptions you have made.

35000 × 5g = 175000 g

175 kg.

It is unreasonable for her to lift 175kg.. it would be too heavy. [4]

(c) How have any assumptions you have made affected your answer to part (b)?

if the coins are lighter the total weight would be less but she is still unlikely to be able to lift them [1]

2. Emma has done some calculations. Explain how you know the answer is wrong without working out the correct answer.

0.38 × 0.26 = 0.827

0.4 × 0.3 = 0.12

Her answer is too big and should have 4 decimal places [1]

3. Write down a number between 1.56 and 1.57.

1.56 ——— 1.57

..... 1.565 ..... [1]

4. Eddie and Caroline are going to the school play.

Eddie buys 6 adult tickets and 2 child tickets. He pays £39.

Caroline buys 5 adult tickets and 3 child tickets. She pays £36.50.

Work out the cost of an adult ticket and the cost of a child ticket.

1 $6A + 2C = 39$ $\times 3$

2 $5A + 3C = 36.50$ $\times 2$

3 $18A + 6C = 117$

4 $10A + 6C = 73$

$8A = 44$

$A = 5.50$

$6 \times 5.50 + 2C = 39$

$2C = 6$

$C = 3$

Adult ticket £ 5.50

Child ticket £ 3.00 [5]

5. Milly has a 12m length of material.

She uses four lengths of 2.3m to make curtains. 9.2m

She uses the rest to make cushions. 2.8m

A cushion needs a length of 0.48m of the material.

Show that she can make no more than five cushions.

She can make 5.8̇ which means 5 cushions maximum

$4 \times 2.3 = 9.2$

$12 - 9.2 = 2.8$

$2.8 \div 0.48 = \frac{2.8}{0.48} \overset{\times 100}{=} \frac{280}{48} = \frac{140}{24} = \frac{70}{12} = \frac{35}{6}$

$6 \overline{)35.80}$ $05.8\dot{3}$

[5]

6. (a) Jacob earns £93.20 for 8 hours' work.

He gets the same amount of pay for each hour.

What is his rate of pay per hour?

$8 \overline{)93.20}$ 11.65

(a) £ 11.65 [2]

(b) Lena works for 34 hours from Monday to Friday at her normal rate of pay.

On Saturdays she gets an overtime rate of pay.

The overtime rate is 1.5 times her normal rate.

She works for 4 hours on a Saturday.

Altogether Lena earns £320 for her week's work.

What is her normal rate of pay per hour?

34x

1·5x × 4 = 6x

£12

check 34 × 8 + 4 × 12 = 320 ✓

$34x + 6x = 320$

$40x = 320$

$x = £8$

(b) £ 8 [3]

7. Here are some numbers.

9.6 + 12.6 + 15.4 + 7.6 + 12.4 + 17.4 = 75

Write the numbers in pairs so that the sum of the numbers in each pair is the same.

$75 \div 3 = 25$

$9.6 + 15.4 = 25$

$12.6 + 12.4 = 25$

$7.6 + 17.4 = 25$

9.6 and 15.4

12.6 and 12.4

7.6 and 17.4

[2]

8. Ranjit has six coins in his pocket.

If he picks five of the coins

the most he could pick is £4.60

the least he could pick is £2.70

£1.90

£2 £1 £1 50p 10p = 2.60

10p £1 £1 50p 10p = 2.60 ✓

How much money does he have altogether?

£2, £1, £1, 50p, 10p, 10p = £4.70

check

4.60 → 2, 1, 1, 50, 10

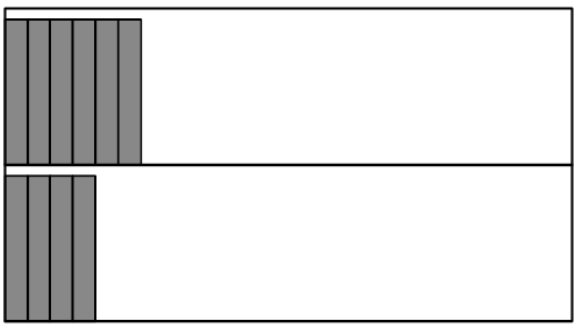
2.70 → 1 1 50 10, 10

[4]

9. Textbooks are stored on two shelves.

Each shelf is 0.72 metres long. 720cm 720mm

Each textbook is 30 millimetres wide.



Not drawn accurately

720 ÷ 30 = 72/3

= 24 books on each shelf

Can 50 textbooks be stored on these shelves?

You must show your working.

2 shelves: 24 × 2 = 48

No, 50 books cannot be stored

[3]

10. All tickets for a concert are the same price.

Amy and Dan pay £63 altogether for some tickets.

Amy pays £24.50 for 7 tickets. = £3.50 each

How many tickets does Dan buy?

63 ÷ 3.5 = 18 tickets

[4]

11. Work out 2.4 × 0.002

2 × 2.4 = 4.8

.0004 8

0.00048

[1]

12. Write the following numbers in order of size.

Start with the smallest number.

0.610 0.100 0.160 0.106

4 1 3 2

0.1, 0.106, 0.16, 0.61

[1]

13. Work out 6.34 × 5.2

634 x 52

634
52
1268
31700
32968

.....32.968..... [2]

14. Martin has 8 pints of soup in a pan.

He also has 24 soup bowls.

He puts 0.3 pints of soup into each bowl. 24 x 0.3 = 7.2 pints

24
×3
72

How much soup has Martin left over?

8 - 7.2

.....0.8.....pints [3]

15. Faiza buys

one magazine costing £2.30

one paper costing 92p

two identical bars of chocolate

2.30
+ 92
3.22

Faiza pays with a £5 note.

She gets 40p change.

£4.60 spent

Work out the cost of one bar of chocolate

4.60
- 3.22
1.38

1.38 ÷ 2 = 69p

.....69p..... [3]

16. Tracy buys

2 coffees at £1.10 each 2.20

3 teas at 95p each 2.85

5 sandwiches at £2.15 each 10.75

Tracy shares the total cost equally between 5 people. = £15.80

How much does each person pay?

15·80 ÷ 5

£ 3·16 [4]

17. Ibrar buys 3kg of apples.

He also buys 0.4kg of mushrooms.

The total cost is £6.93

1kg of apples cost £1.95 × 3 = 5·85

Work out the cost of 1kg of mushrooms.

6·93 − 5·85 = 1·08

0·4kg = 1·08

÷4 ↓ 0·1kg

×10 1kg = 2·70

£ 2·70 [3]

18. Which of these numbers is 6 less than −1.4?

−1·4 − 6

Circle your answer.

[1]

-8.4 -7.4 -2.0 4.6

19. Tom earns £9.20 per hour.

He works for

24 hours each week 9·20 × 24 = 220·80

48 weeks each year. 220·8 × 48 = 10598·40

He pays tax if he earns more than £10 000 per year.

Does Tom pay tax?

You must show your working.

Yes 10598·40 > 10,000

[2]

20. Luke saves 10p coins and 20p coins.

He has 102 3x 34 x

three times as many 10p coins as 20p coins

a total of £17

How many 10p coins does he have?

$3x \times 10 + 20x = 1700$

$30x + 20x$

$50x = 1700$

$x = 34$

102

[3]

21. Colin drinks of a litre of milk each day.

Milk costs 89p for a 2-litre carton and 49p for a 1-litre carton.

What is the smallest amount that Colin would have to spend to buy milk for one week?

Show your working. 7 litres a week

89 ×3 267

$89 \times 3 = 267$

$+ \quad 49 \times 1 = 49$

3.16

£ 3.16 [3]

22. Henry is thinking of having a water meter.

These are the two ways he can pay for the water he uses.

Water Meter
A charge of £28.20 per year
plus
91.22p for every cubic metre of water used
1 cubic metre = 1000 litres

No Water Meter
A charge of £107 per year

Yes he should it is cheapest to get a water meter

Henry uses an average of 180 litres of water each day. × 365 = 65700 per year

Use this information to determine whether or not Henry should have a water meter.

per year = 65.7 cubic metres

$65.7 \times 0.9122 = 59.93154$

$+ 28.20 = 83.13$

[5]

23. Work out 23.7 - 2.5 x 8

23.7 - 20 = 3.7

[2]

24. Write these numbers in order starting with the smallest.

2.303	2.300	2.330	2.030
3	2	4	1

2.03, 2.3, 2.303, 2.33

[1]

25. Jon has 78p

Nat has £3.52

0.78 + 3.52 = 4.30

Nat gives Jon some money so that they both have the same amount.

How much does Nat give Jon?

4.30 ÷ 2 = 2.15

2.15 - 0.78 = £1.37

[2]

26. In March, Kim pays the same amount for each song she downloads.

She pays £35.60 for 40 songs.

0.89 per song

In April, she pays 5p more for each song.

0.94

She has a £30 voucher.

What is the maximum number of songs she can download using the voucher?

30 ÷ 0.94 = 31.914

31 songs

[3]

27. In 2012 electricity cost 15p per unit.

A family used 3729 units ×15 = £491.85

In 2013 electricity cost 17p per unit.

The family used 3506 units. ×17 = 596.02

How much more did the family pay for electricity in 2013?

596.02 - 491.85 = 104.17

[3]

£2·40 per bag

28. Amir buys 10 bags of daffodil bulbs at a total cost of £24.

A label on each bag states that it contains between 30 and 40 bulbs.

Amir states that the cost per single daffodil is 8p.

(a) Explain how Amir reached this conclusion.

You must show working to support your answer.

he assumed there were 30 bulbs 2·40 ÷ 30 = 0·08

8p

[2]

(b) What could have been the lowest cost per single daffodil bulb that Amir paid?

2·40 ÷ 40 = 0·06 = 6p.

[2]

(c) Using your answers to parts (a) and (b), write down what conclusion can be made about the cost of a single daffodil bulb.

The cost is between 6p and 8p.

[1]

29. (a) Lisa buys the following items from an online music store.

Complete her bill.

Item	Cost
10 badges at 85p each	£ 8·50
3 T-shirts at £7.95 each	£ 23·85
20 blank CDs at £2.49 per pack of 5	£ 9·96
4 x 2·49 **Total**	£ 42·31

[3]

(b) The online store gives free delivery when the total cost is £50 or over.

How much more does Lisa need to spend to get free delivery?

50 - 42·31 = £7·69

[1]

(c) The music store also has a special offer on music-video downloads.

Download one music-video for £1.99 SPECIAL OFFER TODAY 3 for the price of 2

1 = 1·99
2 = 3·98
3 = 3·98

What is the cost of 9 music-video downloads with this special offer?

3·98 x 3 = £11·94

[2]

30. The total cost of 6 copies of a magazine and 4 copies of a newspaper is £29.04.

The magazines cost £4.12 each. 24·72

Find the cost of one newspaper.

29.04 - 24·72 = 4·32

4·32 ÷ 4 = £1·08

[3]

31. Write the following numbers in order of size, smallest first.

60.6	6.601	6.106	0.600	6.060
5	4	3	1	2

0·6 6·06 6·106 6·601 60· [2]

32. Write down the value of the 3 in 16.35

Three tenths

[1]

33. A shop sells pens at different prices.
The cheapest pens in the shop cost 27p each.

Lottie buys 18 pens from the shop. 18 x 27 = 486 £4·86
She pays with a £10 note.

(a) If Lottie buys 18 of the cheapest pens, how much change should Lottie get?

10 - 4·86

£ 5·14 [2]

Instead of buying the cheapest pens, Lottie buys 18 of the more expensive pens.

She still pays with a £10 note.

(b) How does this affect the amount of change she should get?

she will get less change.

[1]

34. Boxes of chocolates cost £3.69 each.

A shop has an offer.

> Boxes of chocolates
>
> 3 for the price of 2

1 = 3.69
2 = 7.38
3 = 7.38
6 = 14.76
12 = 29.52
18 = 44.78
21 = 51.66 X

Ali has £50

He is going to get as many boxes of chocolates as possible.

How many boxes of chocolates can Ali get?

18 = 44.78
19 = 48.47
20 = 52.16 X

19 boxes

[3]

35. Work out 25.8 + 12.6 ÷ 2

6.3

25.8
6.3
32.1

32.1

[2]

36. Sam spends exactly £20 on petrol.

The petrol costs £1.45 per litre.

Work out the number of litres of petrol she buys.

Give your answer to 1 decimal place.

20 ÷ 1.45 = 13.793103...

= 13.8

[3]

37. Here is a bank statement.

Date	Description	Credit £	Debit £	Balance £
13 Oct	Starting balance			136.05
14 Oct	Cash paid in	40.00		176.05
15 Oct	Refund	65.20		241.25
16 Oct	Go Shop		83.19	158.06
17 Oct	Water bill		164.76	-6.70
18 Oct	Wage	46.00		39.30

Complete the balance column.

[3]

CREDITS AND NOTES

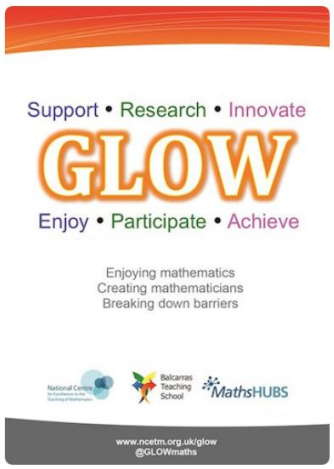
Q	Awarding Body	Q	Awarding Body	Q	Awarding Body	Q	Awarding Body
1	OCR	13	Pearson Edexcel	25	AQA	37	AQA
2	OCR	14	Pearson Edexcel	26	AQA		
3	OCR	15	Pearson Edexcel	27	AQA		
4	OCR	16	Pearson Edexcel	28	WJEC Eduqas		
5	OCR	17	Pearson Edexcel	29	WJEC Eduqas		
6	OCR	18	AQA	30	WJEC Eduqas		
7	AQA	19	AQA	31	OCR		
8	AQA	20	AQA	32	Pearson Edexcel		
9	AQA	21	OCR	33	Pearson Edexcel		
10	AQA	22	Pearson Edexcel	34	Pearson Edexcel		
11	AQA	23	AQA	35	AQA		
12	Pearson Edexcel	24	AQA	36	AQA		

Notes:

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.



Links:

AQA http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

OCR http://ocr.org.uk/gcsemaths

Pearson Edexcel http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

WJEC Eduqas http://www.eduqas.co.uk/qualifications/mathematics/gcse/

Contents:

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material