Calculations (F)

Name:	
Total Marks:	

1. 8 identical pens cost £12

   Work out the cost of 10 of these pens.

   £.. [2]

2. (a) Work out 84 ÷ 3

   .... [1]

 (b) Work out 0.17 × 6000

   .... [1]

 (c) Work out $(-2)^3$

   .... [1]

3. One day Sally earned £60

   She worked for 8 hours.

   Work out Sally's hourly rate of pay.

   £.. [2]

4. Circle the two statements that are false.

   A If p is an integer then 3p is a multiple of 3.

   B If q is an even number then $\frac{q}{2}$ is always an even number.

   C If s is an integer then 2s + 1 is an odd number.

   D If t is an even number then t³ is an odd number.

[2]

5. Work out.

   (a) 926 − 382

   (a) .... [1]

   (b) 517 × 16

   (b) .... [2]

6. Write these numbers in order of size, smallest first.

   12   -7   -11   -2

   .... [1]

7. Write these temperatures in order.

   Start with the lowest temperature.

   7°C   −2°C   10°C   −5°C   3°C

   .... [1]

8. Tracy buys

   2 coffees at £1.10 each

   3 teas at 95p each

   5 sandwiches at £2.15 each

   Tracy shares the total cost equally between 5 people.

   How much does each person pay?

   £ .... [4]

9. Coffee is sold in jars.

There are 200g of coffee in each jar.

Ben makes 8 cups of coffee each day.

He thinks he uses 2g of coffee to make each cup of coffee.

Ben wants to buy enough coffee for 28 days.

(a) How many jars of coffee does Ben need to buy?

.... [3]

Ben finds that he uses 2.5 g of coffee to make each cup of coffee.

(b) How does this affect the number of jars of coffee he needs to buy?

You must give a reason for your answer.

....
....[2]

10. Alice makes cards.

Each card uses 42 cm of ribbon.

She has 1000 cm of ribbon.

(a) Work out the maximum number of cards she can make.

[2]

(b) How much ribbon will be left over?

[1]

11. Liz buys a car for £7500

She pays a deposit of £1875

She pays the rest in 36 equal monthly payments.

Work out the amount of each monthly payment.

[3]

JustMaths

12. 110 students go on a school trip.

Pack of 6

Each student needs a bottle of water.

How many of these packs are needed?

[3]

13. (a) Circle the value of 2^4

[1]

6   8   16   24

(b) Circle the value of 5^3

[1]

15   25   53   125

(c) Circle the value of $\sqrt{196}$

[1]

13   14   16   98

14. A hotel charges:

£59 per night for a room

£6.95 for breakfast

£12.50 for an evening meal.

Liz stays at the hotel for 5 nights.

She has 3 breakfasts and 1 evening meal.

How much does she pay altogether?

[4]

15. Jody's pay is £315 per week.

Jody wants to work out her yearly pay.

She says,

"There are 4 weeks in a month, so I will multiply £315 by 4

There are 12 months in a year, so I will multiply the answer by 12

£315 x 4 x 12 = £15 120"

Does her method give the correct amount for her yearly pay?

Tick a box.

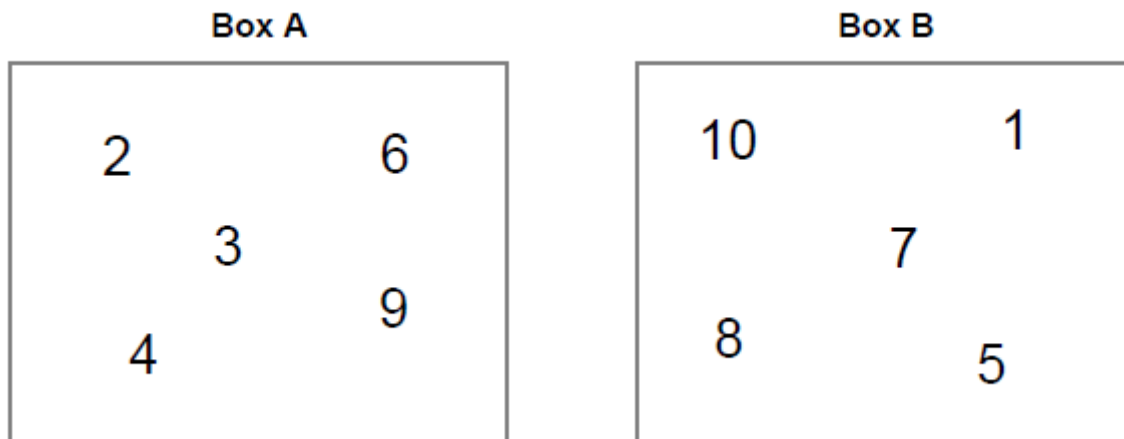| | No, her yearly pay is more | | Yes | | No, her yearly pay is less |

Show working to support your answer.

[2]

16. How many DVDs do you get for £35?

DVDs
£5 each
Buy 2 get 1 free

[3]

17. Two of the numbers move from Box A to Box B.

Box A
2   6
3
9
4

Box B
10   1
7
8
5

The total of the numbers in Box B is now four times the total of the numbers in Box A.

Which two numbers move?

[2]

18. The table shows the number of cars that used a town's car park during a period of one week.

Day	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	TOTAL
Number of cars	104	43	112	163	116	182	80	800

(a) How many cars used this car park during the weekend (Saturday and Sunday)?

[1]

(b) One of the days between Monday and Friday is the town's market day.

On another day, between Monday and Friday, the shops are only open in the morning.

Using the information given in the table, which days do you think they are?

Market day	Morning opening only

[2]

(c) The car park has space for 170 cars.

Explain how it was possible for 182 cars to have used the car park on Saturday.

[1]

The charge for using this car park is displayed on the notice shown below.

CAR PARK

Monday to Friday: £2 per day
Free parking on Saturday and Sunday

(No time limit)

(d) How much money was spent on parking at this car park for the week shown in the table?

[2]

(e) The town council is considering a new system for the way it charges for parking.

The new system is

  • reducing the charge to £1.50

  and

  • charging this amount on all seven days of the week

  and

  • allowing free parking for those who stay for less than one hour.

That week, a quarter $(\frac{1}{4})$ of the cars stayed for less than one hour.

Using this information, decide whether this new system would collect more or less money for the council.

You must show all your working.

[3]

State an assumption you have made in part (e) and explain how your results would change if this assumption had not been made.
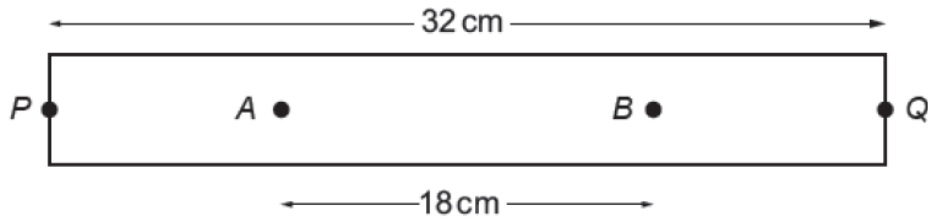
[2]

A piece of wood is 32 cm long.

$$\text{32 cm}$$

P •   A •   B •   • Q

$$\text{18 cm}$$

Diagram not drawn to scale

Alan wants to drill two holes in the wood at points *A* and *B*, where *AB* = 18cm.

The distance *PA* and *QB* must be equal.

Diagram not drawn to scale

Calculate the length *PA*.

20. On an island there are two companies that hire out fishing boats to visitors.

Fishing Boats R Us	Ocean Blue Boats
Hire charges	Hire charges
£45 for first hour then £30 per hour (or part of an hour)	£32 per hour (or part of an hour)

Robert wants to hire a boat to go fishing with his friends.

He needs the boat from 9:15 a.m. to 5:30 p.m.

Which company would you advise Robert to use?

Show all your working and a give a reason for your answer.

[5]

21. Here are four cards.

<div>
4   5   2   1
</div>

There is a number on each card.

(a)   Write down the largest 4-digit even number that can be made using each card only once.

.... [2]

(b)   Write down all the 2-digit numbers that can be made using these cards.

.... [2]

22. Work out 247 × 63

[3]

23. A unit of gas costs 4.2 pence.

On average Ria uses 50.1 units of gas a week.
She pays for the gas she uses in 13 weeks.

(a) Work out an estimate for the amount Ria pays.

.... [3]

(b) Is your estimate to part (a) an underestimate or an overestimate?

Give a reason for your answer.

[1]

24. A shop sells milk in 1 pint bottles and in 2 pint bottles.

    Each 1 pint bottle of milk costs 52p.

    Each 2 pint bottle of milk costs 93p.

Martin has no milk.

He assumes that he uses, on average, $\frac{3}{4}$ of a pint of milk each day.

Martin wants to buy enough milk to last for 7 days.

(a) Work out the smallest amount of money Martin needs to spend on milk.

   You must show all your working.

£... [3]

Martin actually uses more than $\frac{3}{4}$ of a pint of milk each day.

(b) Explain how this might affect the amount of money he needs to spend on milk.

[1]

25. Michelle and Wayne have saved a total of £458 for their holiday.

    Wayne saved £72 more than Michelle.

    How much did Wayne save?

[2]

26. Work out $\dfrac{30 + 12}{5 + 3}$

[1]

27. In a quiz, teams are asked 20 questions.   Teams score

    3 points for a correct answer

0 points for questions not attempted

−2 points for an incorrect answer.

a) Team A has these results.

	Correct	Not attempted	Incorrect
Number of questions	12	5	3

Work out the total number of points Team A scores.

[2]

b) Team B answers 16 out of 20 questions correctly.

Work out the percentage of questions Team B answers correctly.

[2]

c) After 17 questions, Team C has 35 points.

After 20 questions, Team C has 34 points.

How many of the last three questions are answered correctly, not attempted or answered incorrectly?

Correct _____

Not attempted _____

Incorrect _____

[2]

28. 82 children visit a sports centre.

50 of the children swim.

At least one adult is needed for every 12 children who swim.

The other 32 children dance.

At least one adult is needed for every 15 children who dance.

Work out the minimum number of adults needed for the 82 children.

[4]

29. Jack works out the answer to $\frac{\sqrt{98.5} - 12.1}{-0.8}$

He says the answer is negative.

Is he correct?

You must show your working.

[2]

30. 15 rulers cost £3

How much do 40 rulers cost?

[2]

31. Which statement is true? Circle your answer.

−6 is greater than −2   −6 is greater than 2

−2 is greater than −6   −2 is greater than 6

[1]

32. Here are some cards.

| +8.3 | +8.9 | −8.9 | −8.3 |

a) Choose a card so that the answer is as small as possible.

Work out the answer.

| −3.5 | + | ☐ | = | _____ |

[2]

b) Choose a card so that the answer is as small as possible.

Work out the answer.

$$-3.5 - \boxed{} = \underline{}$$

[2]

CREDITS AND NOTES

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

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