ESTIMATING

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Foundation Tier

1.

18 Work out an estimate for $\dfrac{790 \times 289}{49}$

.....

(Total for Question 18 is 3 marks)

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Foundation Tier

2.

24 A plane travels at a speed of 213 miles per hour.

(a) Work out an estimate for the number of seconds the plane takes to travel 1 mile.

..... seconds

(3)

(b) Is your answer to part (a) an underestimate or an overestimate?
Give a reason for your answer.

.....

.....

(1)

(Total for Question 24 is 4 marks)

Pearson Edexcel - Thursday 2 November 2017 - Paper 1 (Non-Calculator) Foundation Tier

3.

20 Ami and Josh use a calculator to work out $\dfrac{595}{4.08^2 + 5.3}$

Ami's answer is 27.1115
Josh's answer is 271.115

One of these answers is correct.

Use approximations to find out which answer is correct.

(Total for Question 20 is 3 marks)

Pearson Edexcel – Specimen 1 - Paper 1 (Non-Calculator) Foundation Tier

4.

14 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.

.....

.....

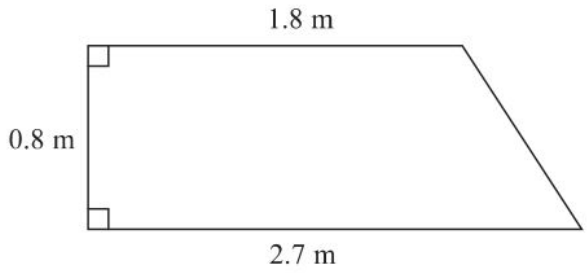
(1)

(Total for Question 14 is 4 marks)

Pearson Edexcel – Specimen 1 - Paper 3 (Calculator) Foundation Tier

5.

25 The diagram shows part of a wall in the shape of a trapezium.



Karen is going to cover this part of the wall with tiles.
Each rectangular tile is 15 cm by 7.5 cm

Tiles are sold in packs.
There are 9 tiles in each pack.

Karen divides the area of the wall by the area of a tile to work out an estimate for the number of tiles she needs to buy.

(a) Use Karen's method to work out an estimate for the number of packs of tiles she needs to buy.

.....

(5)

Karen is advised to buy 10% more tiles than she estimated.
Buying 10% more tiles will affect the number of the tiles Karen needs to buy.

She assumes she will need to buy 10% more packs of tiles.

(b) Is Karen's assumption correct?
You must show your working.

(2)

(Total for Question 25 is 7 marks)

OCR Thursday 07 November 2019- Morning (Non-Calculator) Foundation Tier

6.

15 Angie is planning a presentation evening.
She writes down her costs and income.

Costs	Income
10 staff each working 6 hours at £8 per hour Food: 60 meals at £8.95 each Prizes: 12 prizes at £19.99 each	60 guests each paying £5 Sponsorship £1000

Angie thinks she will make a small profit.

Use estimation to decide if Angie is correct.
Show all of your working.

7.

20 A bag contains 100 pencils that are either red or green.

Describe a method you could use to estimate the number of red pencils in the bag without looking into the bag or having more than one of the pencils out of the bag at any one time.

.....

.....

.....

..... **[4]**

OCR Thursday 6 June 2019 – Morning (Non-Calculator) Foundation Tier

8.

2 By rounding each value to one significant figure, estimate the cost of 3.9 kg of apples at 87p per kg.

£ ..... **[2]**

OCR Thursday 8 November 2018 – Morning (Non-Calculator) Foundation Tier

9.

12 **(a)** Work out.

$$8 \div 0.4$$

(a) ..... **[2]**

(b) By writing each number correct to 1 significant figure, find an estimate for this calculation.

$$\frac{22.1 \times 37}{1.9}$$

(b) ..... **[3]**

OCR Monday 12 November 2018 – Morning (Calculator) Foundation Tier

10.

22 A newborn baby has an approximate mass of 3.5 kilograms.

A human cell has an approximate mass of 2.7×10^{-11} grams.

Use these values to estimate the number of human cells in a newborn baby.
Give your answer in standard form, correct to 2 significant figures.

..... **[5]**

OCR Tuesday 12 June 2018– Morning (Calculator) Foundation Tier

11.

19 Asha worked out $\frac{326.8 \times (6.94 - 3.4)}{59.4}$.

She got an answer of 19.5, correct to 3 significant figures.

Write each number correct to 1 significant figure to decide if Asha's answer is reasonable.

.....

..... **[3]**

OCR Monday 6 November 2017– Morning (Calculator) Foundation Tier

12.

7 (a) Work out.

(i) $1+4\div2$

(a)(i) ..... [1]

(ii) $2+5\times(8-4)$

(ii) ..... [1]

(b) Evaluate.

(i) 2^5

(b)(i) ..... [1]

(ii) $\sqrt{400}$

(ii) ..... [1]

(c) Estimate the value of

$$\frac{23.1\times3.9}{8.12}.$$

(c) ..... [3]

13.

---

5 Tanya needs to buy chocolate bars for all the children in Year 7
Each of the 130 children get one chocolate bar.

There are 8 chocolate bars in each packet.

Work out the least number of packets of chocolate bars that Tanya needs to buy.

.....

(Total for Question 5 is 3 marks)

14.

13 Paul organised an event for a charity.

Each ticket for the event cost £19.95
Paul sold 395 tickets.

Paul paid costs of £6000
He gave all money left to the charity.

(a) Work out an estimate for the amount of money Paul gave to the charity.

£.....

(3)

(b) Is your answer to (a) an underestimate or an overestimate?
Give a reason for your answer.

.....

.....

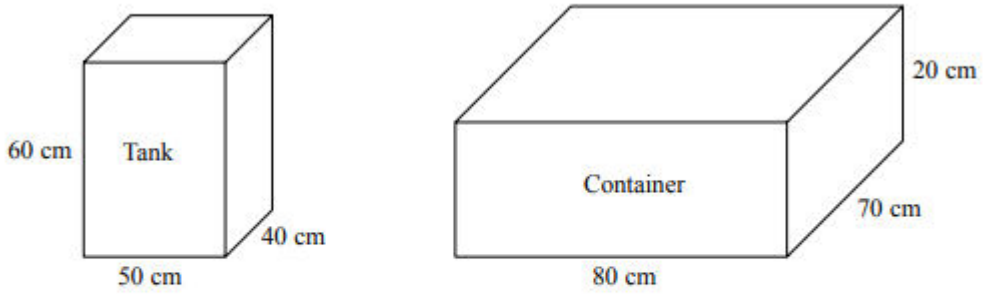
(1)

(Total for Question 13 is 4 marks)

Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier

15.

14 The diagram shows a tank in the shape of a cuboid.
It also shows a container in the shape of a cuboid.



The tank is full of oil.
The container is empty.

35% of the oil from the tank is spilled.
The rest of the oil from the tank is put into the container.

Work out the height of the oil in the container.
Give your answer to an appropriate degree of accuracy.

..... cm

(Total for Question 14 is 5 marks)

16.

19 Jane made some almond biscuits which she sold at a fete.

She had:
5 kg of flour
3 kg of butter
2.5 kg of icing sugar
320 g of almonds

Here is the list of ingredients for making 24 almond biscuits.

Ingredients for 24 almond biscuits
150 g flour 100 g butter 75 g icing sugar 10 g almonds

Jane made as many almond biscuits as she could, using the ingredients she had.

Work out how many almond biscuits she made.

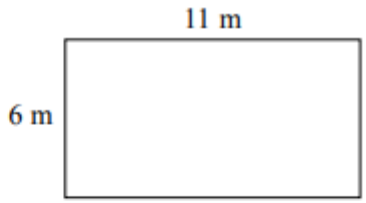
.....

(Total for Question 19 is 3 marks)

17.

22 A tin of varnish costs £15

A rectangular floor has dimensions 6 m by 11 m.
The floor is going to be covered in varnish.



Helen assumes that each tin of this varnish covers an area of 12 m^2.

(a) Using Helen's assumption, work out the cost of buying the varnish for this floor.

£.....

(4)

Helen finds that each tin of varnish covers less than 12 m^2.

(b) Explain how this might affect the number of tins she needs to buy.

.....

.....

(1)

(Total for Question 22 is 5 marks)

OCR Thursday 8 June 2017 – Morning (Non - Calculator) Foundation Tier

18.

16 Last year, Katie earned £16 200.
Her total loan repayments were £6400.

Katie estimates that the ratio of her loan repayments to her earnings is approximately 3 : 8.

Is she correct?
Show your reasoning.

..... **[3]**

OCR Tuesday 13 June 2017 – Morning (Calculator) Foundation Tier

19.

11 **(a)** Grapes cost £2 per kilogram.

Calculate the cost of 380 g of grapes.

(a) £ ..... **[2]**

(b) Ruth buys 19 identical tickets for £280.25.

Estimate the cost of one ticket.
Show your working.

(b) £ ..... **[2]**

OCR Sample Question Paper 2 – Morning/Afternoon (Non - Calculator) Foundation Tier

20.

4 Charlie, Mo and Andrzej share a flat.

- Charlie pays 25% of the rent.
- Mo pays $\frac{1}{2}$ of the rent.
- Andrzej pays £450.

How much do they pay altogether for the rent?

£ ..... **[4]**

OCR Sample Question Paper 2 – Morning/Afternoon (Non - Calculator) Foundation Tier

21.

15 Sam and two friends put letters in envelopes on Monday.
The three of them take two hours to put 600 letters in envelopes.

(a) On Tuesday Sam has three friends helping.

Working at the same rate, how many letters should the **four** of them be able to put in envelopes in two hours?

(a) ..... **[2]**

(b) Working at the same rate, how much longer would it take **four** people to put 1000 letters in envelopes than it would take **five** people?

(b) ..... **[4]**

(c) Sam says

> It took two hours for three people to put 600 letters in envelopes.
> If I assume they work all day, then in one day three people will put 7200 letters in envelopes because $600 \times 12 = 7200$.

Why is Sam's assumption not reasonable?
What effect has Sam's assumption had on her answer?

.....

..... **[2]**

AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier

22.

13 Milly has an equal number of 20p coins and 50p coins.
The value of her 20p coins is £2.80

Work out the **total** value of her 20p and 50p coins.

[3 marks]

Answer £ _____

AQA Thursday 6 June 2019 – Morning (Calculator) Foundation Tier

23.

17 In a bag there are 10p coins, 20p coins and 50p coins.

There are two **fewer** 20p coins than 10p coins.

There are five **more** 50p coins than 10p coins.

17 (a) Complete the table.

[1 mark]

Coin	Number of coins
10p	n
20p	$n - 2$
50p	

17 (b) Altogether, there are 60 coins.

Work out the total **value** of the 20p coins.

[4 marks]

Answer £_____

AQA Thursday 8 November 2018 – Morning (Calculator) Foundation Tier

24.

6 (a) Complete the bank statement.

[3 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
01/09/18	Starting balance			1140.79
06/09/18	Car repairs		256.00	
17/09/18	Gas bill		87.31	
24/09/18	Salary	2069.75		

6 (b) Write down the meaning of 'Debit' as used in the bank statement.

[1 mark]

25.

13 A charity sends an appeal letter to 3000 people.
The letter asks for a donation of money.

Here is some information about the last appeal letter the charity sent out.

$\frac{1}{2}$ of the people who were sent the letter made a donation.
The average donation was £8.60
$\frac{1}{3}$ of the people who made a donation filled in a tax form. The government adds 25% to the donations of these people.

13 (a) Using this information,
work out the amount the charity can expect to receive from this appeal.

[6 marks]

Answer £ _____

13 (b) The average donation from the people who filled in a tax form was more than £8.60

How does this affect your answer to part (a)?

Tick **one** box.

- ☐ It should be lower
- ☐ It should be higher
- ☐ It should stay the same

Give a reason.

[1 mark]

26.

15 A company uses this formula to work out the cost, £A, of a taxi ride.

$$A = 4 + 1.8m + b$$

£4 is a fixed charge

m is the number of miles travelled

£b is a charge for booking online

15 (a) Clare books a taxi online and travels 8 miles.

She pays £20 altogether.

How much is the charge for booking online?

[3 marks]

Answer £ _____

15 (b) A different company

has a fixed charge of £3

charges £1.90 per mile

has no charge for booking online.

Write a formula for the cost, £C, of a taxi ride with this company.

[1 mark]

Answer _____

AQA Monday 12 November 2018 – Morning (Calculator) Foundation Tier

27.

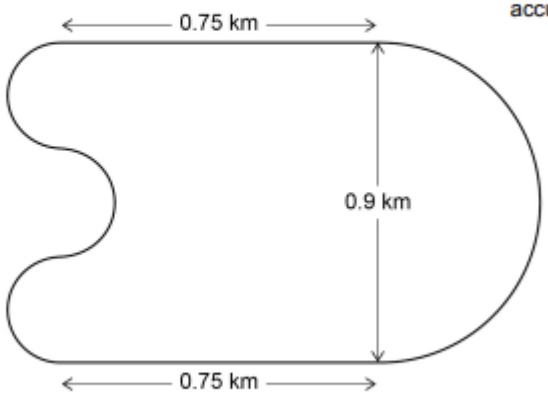
27 A motor racing circuit consists of

two parallel straight sections, each of length 0.75 km

a semicircle of diameter 0.9 km

three equal, smaller semicircles.

Not drawn accurately



The length of a motor race must be greater than 305 km

What is the lowest number of **full** laps needed at this circuit?

You **must** show your working.

[5 marks]

Answer _____

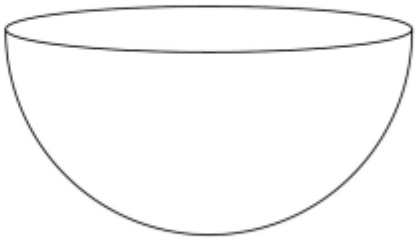
AQA Thursday 7 June 2018 – Morning (Calculator) Foundation Tier

28.

27

Volume of a sphere = $\frac{4}{3}\pi r^3$ where r is the radius

A container is a hemisphere of radius 30 cm



Sand fills the container at a rate of 4000 cm^3 per minute.

Does it take **less than** a quarter of an hour to fill the container?

You **must** show your working.

[3 marks]

Answer _____

AQA Tuesday 12 June 2018 – Morning (Calculator) Foundation Tier

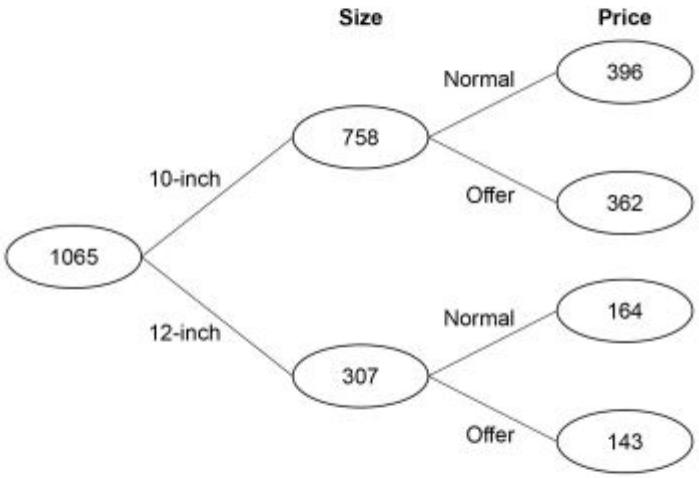
29.

12 A takeaway sells 10-inch pizzas and 12-inch pizzas.
Here is some information about the numbers sold in two weeks.

Week 1

10-inch	512
12-inch	231
Total	743

Week 2



12 (a) In each week a proportion of the pizzas sold were 10-inch.

In which week was this proportion greater?
Show working to support your answer.

[2 marks]

Answer _____

12 (b) The table shows the profit or loss the takeaway makes on each pizza.

	Normal price	**Offer price**
10-inch	£3.74 profit	51p loss
12-inch	£5.29 profit	4p loss

In week 1 the total profit was £1895.55

At the end of week 1 the takeaway spent £175 on adverts.

Was the **increase** in profit in week 2 more than the cost of the adverts?

You **must** show your working.

[4 marks]

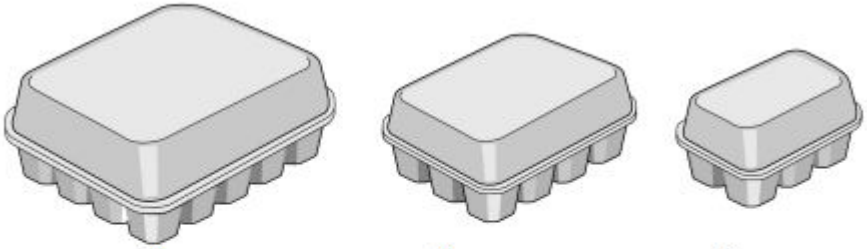
Answer _____

AQA Wednesday 8 November 2017 – Morning (Calculator) Foundation Tier

30.

9 A farmer has 580 eggs to put into boxes.

The boxes come in three sizes.



20 eggs 12 eggs 6 eggs

He wants

at least 10 boxes of 20 eggs

at least 15 boxes of 12 eggs

at least 25 boxes of 6 eggs.

The farmer fills 54 boxes with the 580 eggs.

Show how he does this.

[5 marks]

Answer _____ boxes of 20 eggs

_____ boxes of 12 eggs

_____ boxes of 6 eggs

AQA Thursday 25 May 2017– Morning (Non-Calculator) Foundation Tier

31.

21 Billy wants to buy these tickets for a show.

4 adult tickets at £15 each

2 child tickets at £10 each

A 10% booking fee is added to the ticket price.

3% is then added for paying by credit card.

Work out the **total** charge for these tickets when paying by credit card.

[5 marks]

Answer £ _____

AQA Thursday 8 June 2017– Morning (Calculator) Foundation Tier

32.

18 Ellen works for a company that sells cars.

Her **monthly** pay is

- a salary of £1470
- 28% of the total **profit** the company makes from her sales
- a £250 bonus **if** she sells at least 15 cars.

The table shows information about the cars she sold last year.

Total cost to the company	Total income for the company	Number of months when she sold at least 15 cars
£464 500	£538 000	3

Was Ellen's total pay for the **year** more than £40 000?

You **must** show your working.

[6 marks]

Answer _____