

Name

ANSWERS

Class



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Money calculations

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a 1F question you are not allowed to use a calculator.
- If the question is a 2F or a 3F question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

- 4 The table gives information about the prices of cinema tickets.



Cinema ticket	Price
adult ticket	£7.80
child ticket	£5.80
family ticket (for 4 people)	£24.30

Mr Edwards and his 3 children go to the cinema.

It is cheaper for Mr Edwards to buy 1 family ticket rather than 4 separate tickets.

- (a) How much cheaper?

$$\begin{array}{r} 1 \text{ Adult} = £7.80 \\ 3 \text{ children} = £17.40 \\ \hline £25.20 \end{array}$$

$$£25.20 - £24.30$$

90p

The film starts at 6.45 pm.
 The film lasts 102 minutes.

- (b) What time does the film finish?

$$102 = 1 \text{ hour } 42 \text{ minutes}$$



8:27 pm

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

Lottie buys 18 pens from the shop.
She pays with a £10 note.



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

$$18 \times 27p = £4.86$$

$$10 - 4.86$$

$$£ 5.14$$

(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 would get less change.

(1)

Specimen 1 – Paper 2F

(Total for Question 5 is 3 marks)

- 5 Faiza buys

one magazine costing £2.30
one paper costing 92p
two identical bars of chocolate



Faiza pays with a £5 note.
She gets 40p change.

Work out the cost of one bar of chocolate.

$$2.30 + 0.92 + 2x + 0.40 = 5.00$$

$$2x = 1.38$$

$$x = 69p$$

69p

Sample 1 – Paper 3F

(Total for Question 5 is 3 marks)

- 6 Lydia works for 4 hours.
She is paid £50

How much is Lydia paid per hour?



$$\frac{50}{4} = 12.5$$

£ 12.50

November 2023 – Paper 2F

(Total for Question 6 is 2 marks)

- 6 Ryan buys

4 cakes at £1.30 each
2 identical tins of soup.

Ryan pays with a £10 note.
He gets £1.80 change.

How much does Ryan pay for each tin of soup?

$$4(1.30) + 2x + 1.80 = 10.00$$
$$5.20$$

$$2x = 3.00$$

$$x = 1.50$$

£ 1.50

May 2024 – Paper 1F

(Total for Question 6 is 4 marks)

6 Fay is planning a trip to a theme park for 1 adult and 2 children.

These are the costs for the trip.

Total cost of petrol	£23
Tickets to theme park	£33 each adult £24.50 each child
Meals	£15 each adult £10 each child

Fay has £200 to spend.

She pays all the costs.

How much money does she have left?

Adult	Child 1	Child 2
£33 + £15	24.50 + 10	24.50 + 10
£48	£34.50	£34.50

$$\begin{array}{r} = £117 \\ + 23 \text{ petrol} \\ \hline £140 \end{array}$$

£ 60

- 6 There are 14 rows of seats in a cinema.
There are 15 seats in each row.

$$14 \times 15 = 210 \text{ seats}$$



A film was shown in the cinema on Saturday.
Each ticket for the film cost £6.50

The tickets that were sold cost a total of £1274

How many tickets were **not** sold?

$$\frac{1274}{6.50} = 196 \text{ tickets}$$

$$210 - 196 = 14$$

14

- 6 Harry is planning a holiday for 4 people for 7 days.

Here are the costs for the holiday for **each person**.

Travel	£150	
Hotel	£50 for each day	→ £350
Spending money	£250	

Work out the total cost of the holiday for 4 people for 7 days.

$$£150 \times 4 = £600$$

$$£350 \times 4 = £1400$$

$$£250 \times 4 = £1000$$

£ 3000

6 There are 495 coins in a bottle.

$\frac{1}{3}$ of the coins are £1 coins.

124 of the coins are 50p coins.

The rest of the coins are 20p coins.

Work out the total value of the 495 coins.



$$\frac{1}{3} \text{ of } 495 = 165 \Rightarrow \pounds 165$$

$$165 + 62 + 41.20$$

$$124 \times 50p = \pounds 62$$

$$495 - 165 - 124 = 206$$

$$206 \times 20p = \pounds 41.20$$

$$\pounds 268.20$$

7 208 bars of chocolate were sold from a shop.

$\frac{1}{4}$ of these bars of chocolate were large bars.

The rest of the bars of chocolate were small bars.

All the large bars of chocolate were sold for £1 each.

All the small bars of chocolate were sold for 60p each.

Work out the total amount of money for which the 208 bars of chocolate were sold.

Give your answer in pounds.



$$\frac{1}{4} \text{ of } 208 = 52 \text{ large bars} \rightarrow \times £1 = £52$$

$$156 \text{ small bars} \rightarrow \times 60\text{p} = £93.60$$

£ 145.60

- 7 Simon buys some candles.
Each candle costs £2

Simon pays with a £20 note.
He gets £6 change.

Work out the number of candles Simon buys.

$$20 - 6 = £14$$

$$14 \div 2 = 7$$

7

June 2022 – Paper 1F

(Total for Question 7 is 3 marks)

- 7 Fahima buys

2 packets of bread rolls costing £1.50 for each packet $\rightarrow £3$
1 bottle of ketchup costing £1.60
3 packets of sausages

Fahima pays with a £10 note.
She gets 30p change.

Fahima works out that one packet of sausages costs £2.30

Is Fahima right?

You must show how you get your answer.

$$£3 + £1.60 + 3x + £0.30 = £10.00$$

$$£4.90 + 3x = £10.00$$

$$3x = £5.10$$

$$x = £1.70$$

Fatima is wrong, one packet costs £1.70

June 2017 – Paper 1F

(Total for Question 7 is 3 marks)

7 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?

Coffee teas Sandwiches
£2.20 £2.85 £10.75 = £15.80

$$\frac{15.80}{5} = £3.16$$

£ 3.16

Specimen 2 – Paper 2F

(Total for Question 7 is 4 marks)

7 One day Sally earned £60
She worked for 8 hours.

Work out Sally's hourly rate of pay.

$$\frac{60}{8} = \frac{30}{4} = \frac{15}{2}$$

£ 7.50

Sample 1 – Paper 1F

(Total for Question 7 is 2 marks)

8 Curtis needs to buy some items for his sports club.

Here are the prices.



Item	Price
Footballs	£9.50 each $\times 5 = £47.50$
Hockey sticks	£30 for 2 $\times 3 = £90$
Cricket bats	£23 each $\times 2 = £46$
Tennis balls	£5 for 4 $\times 1 = £5$
<u>£188.50</u>	

Curtis needs to buy

- 5 footballs
- 6 hockey sticks
- 2 cricket bats
- 4 tennis balls.

Curtis has £200 to spend.

Show that Curtis can buy all the items he needs.

$$200 > 188.50$$

Curtis has enough to buy all
the equipment.

- 8 Safiya wants to hire a van.
She uses this rule to work out the cost of hiring a van for a number of days.



$$\text{Cost} = £45 \times \text{number of days}$$

Safiya is going to hire the van for 7 days.

Work out the cost.

$$C = £45 \times 7$$

$$C = £315$$

£ 315

November 2022 – 2F

(Total for Question 8 is 2 marks)

- 8 On Monday, Sandy pays for 2 plane tickets, 7 nights in a hotel and 2 theme park tickets.



	dollars	
each plane ticket	600	$\times 2 = \$1200$
each night in a hotel	120	$\times 7 = \$840$
each theme park ticket	250	$\times 2 = \$500$

Show that Sandy pays more than 2500 dollars on Monday.

\$2540

$$2540 > 2500$$

November 2021 – Paper 3F

(Total for Question 8 is 3 marks)

8 Karim buys 200 tiles.

The tiles are sold in boxes.

There are 25 tiles in each box.

Each box of tiles costs £9.75

Work out the total cost of the boxes of tiles Karim buys.

$$\frac{200}{25} = 8 \text{ boxes}$$

$$8 \times £9.75 = £78$$

£ 78

May 2020 – Paper 3F

(Total for Question 8 is 3 marks)

- 8 Neil buys 30 pens, 30 pencils, 30 rulers and 30 pencil cases.



Price list			
pens	6 for 82p	x	5
pencils	15 for 45p	x	2
rulers	10 for £1.25	x	3
pencil cases	37p each	x	30

What is the total amount of money Neil spends?

$$\begin{array}{l} \text{Pens} = £4.10 \\ \text{Pencils} = £0.90 \\ \text{Rulers} = £3.75 \\ \text{Pencil Cases} = £11.10 \\ \hline £19.85 \end{array}$$

£ 19.85

- 8 2 pens cost £2.38 $\rightarrow \times 10$
5 folders cost £5.60 $\rightarrow \times 4$



Ben wants to buy 20 pens and 20 folders.
He only has £50

Does Ben have enough money to buy 20 pens and 20 folders?
You must show how you get your answer.

$$\text{Pens} = £23.80$$

$$\begin{array}{r} \text{Folders} = £22.40 \\ \hline £46.20 \end{array}$$

Yes Ben has enough to buy 20 pens
and 20 folders.

- 8 Joanne wants to buy a dishwasher.

The dishwasher costs £372

Joanne will pay a deposit of £36

She will then pay the rest of the cost in 4 equal monthly payments.

How much is each monthly payment?

$$372 - 36 = 336$$

$$336 \div 4 = 84$$

£ 84

June 2017 – Paper 3F

(Total for Question 8 is 2 marks)

- 9 Anil has a job as a driver.
He is paid for each mile he drives.
He is also paid expenses.

One week Anil writes down the distance readings from his car.

Start of week:

4	7	2	4	1
---	---	---	---	---

 miles

End of week:

4	7	8	7	9
---	---	---	---	---

 miles

$$47879 - 47241$$

$$= 638 \text{ miles}$$

For this week, Anil is paid 47p for each mile he drives.

He is also paid expenses of £80

Work out the total amount that Anil is paid.

Give your answer in pounds.

$$\begin{array}{r} 638 \times 47p = £299.86 \\ + £80 \\ \hline £379.86 \end{array}$$

£ 379.86

May 2024 – Paper 2F

(Total for Question 9 is 4 marks)

9 Lucia is going on a skiing holiday.

The cost of ski hire is £26 per day. $\rightarrow \times 5$

The cost of a lift pass is £45 per day. $\rightarrow \times 4$

The cost of ski lessons is £23.50 per hour. $\rightarrow \times 8$



Lucia will pay for

ski hire for 5 days

a lift pass for 4 days

ski lessons for 8 hours.

Lucia has £500

Show that Lucia has enough money to pay for the total cost of ski hire, the lift pass and the ski lessons.

Ski hire = £130

Lift pass = £180

ski lessons = £188

£498

Yes Lucia has enough.

9 Danny buys,

1 loaf of bread for £1.20

1 bottle of milk for 70p

2 packets of cheese for £2.30 each packet

Danny pays with a £10 note.

He says,

"I should get £3.30 change."

Is Danny correct?

You must show how you get your answer.

Danny is wrong, this
does not total £10.

$$\begin{array}{r} 1.20 \\ 0.70 \\ 2.30 \\ 2.30 \\ + 3.30 \text{ change} \\ \hline 9.80 \end{array}$$

November 2021 – Paper 1F

(Total for Question 9 is 3 marks)

9 Sean works for a company.

His normal rate of pay is £12 per hour.

When Sean works more than 8 hours a day, he is paid overtime for each hour he works more than 8 hours.

Sean's rate of overtime pay per hour is $1\frac{1}{4}$ times his normal rate of pay per hour. $1\frac{1}{4} \times £12$

On Monday Sean worked for 10 hours.

$$= £15$$

Work out the total amount of money Sean earned on Monday.

$$\begin{array}{r} 8h \times £12 = £96 \\ 2h \times £15 = £30 \\ \hline £126 \end{array}$$

£ 126

June 2017 – Paper 1F

(Total for Question 9 is 4 marks)

10 Max sees this special offer in a shop.

Buy one large plate and get one small plate for half the normal price.

The normal price of a large plate is £2

The normal price of a small plate is 80p

Max wants to buy 6 large plates and 6 small plates using this offer.

He has £15

Has Max got enough money?

You must show how you get your answer.

$$1 \text{ large} + 1 \text{ small} = £2 + 40p = £2.40$$

$$6 \text{ large} + 6 \text{ small} = £2.40$$

$$\begin{array}{r} 2.40 \\ 2.40 \\ 2.40 \\ 2.40 \\ + 2.40 \\ \hline 14.40 \end{array}$$

Yes Max has enough to buy the plates.

- 10 A shop sells jars of coffee.
Each jar of coffee costs £4

Michael has £23

- (a) Work out the greatest number of jars of coffee Michael can buy.

$$£4 \times 5 = £20$$
$$£4 \times 6 = £24$$

5

(2)

In a sale on Wednesday, jars of coffee are sold at half price.

Michael thinks that he can now buy exactly twice the number of jars of coffee for £23

- (b) Is Michael correct?

You must give a reason for your answer.

Jars are now £2 each

$$£2 \times 11 = £22$$

No he is not correct.

(1)

- 10 Corina has £300 to spend on books.
Each book costs £4.85



Work out the greatest number of books Corina can buy.

$$\frac{300}{4.85} = 61.855$$

61

November 2021 – Paper 3F

(Total for Question 10 is 3 marks)

- 10 Sonia wants to book a holiday.
The holiday will cost £1428



Sonia will pay a deposit of £150

She will then pay the rest of the cost in 6 equal monthly payments.

How much is each monthly payment?

$$1428 - 150 = 1278 \text{ left to pay}$$

$$\frac{1278}{6} = 213$$

£ 213

June 2022 – Paper 2F

(Total for Question 10 is 3 marks)

10 Here is the charge at a car park in Spain.



Car park

0.024 euros per minute

Jon parked his car in this car park.

Jon drove into the car park at 1045

When he drove out of the car park he had to pay 8.40 euros.

At what time did Jon drive out of the car park?

$$\frac{8.40}{0.024} = 350 \text{ minutes}$$

350 minutes = 5 hours 50 minutes

10:45 15:45 16:35
 ↘ ↘
 +5h +50mn

16:35

10 Tim and three friends go on holiday together for a week.

The 4 friends will share the costs of the holiday equally.

Here are the costs of the holiday.

£1280 for 4 return plane tickets

£640 for the villa

£220 for hire of a car for the week

Work out how much Tim has to pay for his share of the costs.

$$\begin{array}{r} 1280 \\ 640 \\ + 220 \\ \hline 2140 \end{array}$$

$$\begin{array}{r} 535 \\ 4 \overline{) 2140} \end{array}$$

£ 535

10 Bronwin works in a restaurant.

The table gives her rates of pay.



Day	Rate of pay
Monday to Friday	£8.40 per hour
Weekend	£11.20 per hour

Bronwin worked for a total of 20 hours last week.

She worked 8 of these 20 hours at the weekend.

Show that Bronwin was paid less than £200 last week.

$$\begin{array}{r} 8 \times £11.20 = £89.60 \\ 12 \times £8.40 = £100.80 \\ \hline £190.40 \end{array}$$

- 11 At the end of October, Fiona's electricity meter reads 88 738 kWh.
At the end of November, her electricity meter reads 89 198 kWh.

Each kWh of electricity Fiona uses costs 16p

Work out how much Fiona had to pay for the electricity she used in November.

$$\begin{array}{r} 89198 \\ - 88738 \\ \hline 00460 \end{array}$$

$$460 \times 16p$$

$$= \pounds 73.60$$

£73.60

- 11 Dylan buys 13 bicycle lights for £7.50 each.
He pays with five £20 notes.



(a) How much change should Dylan get?

$$13 \times £7.50 = £97.50$$

$$£ \underline{200.00} - £97.50 = £102.50$$

The normal price of a bicycle is £120

In a sale, there is $\frac{1}{5}$ off the normal price of the bicycle.

(b) Work out the price of the bicycle in the sale.

$$\frac{1}{5} \text{ of } 120 = £24$$

$$£ \underline{120.00} - £24.00 = £96.00$$

11 The table shows the costs of sending a parcel by the Express service and by the Rapid service.

Type of service	Cost
Express	£15.25
Rapid	£35.38



Brendan has to send 12 parcels.

It will be cheaper to send the parcels by the Express service than by the Rapid service.

(a) How much cheaper?

$$12 \times £15.25 = £183$$

$$12 \times £35.38 = £424.56$$

$$424.56 - 183$$

$$£ 241.56$$

(3)

Luke wants to send 21 parcels by the Express service.

He does the calculation $20 \times £15 = £300$ to estimate the cost.

(b) Explain why Luke's calculation shows the actual cost will be more than £300

He rounded 21 down to 20, so the actual answer will be higher than 300

(1)

11 The table shows a cricket club's income in 2016 from a fete, a quiz and membership fees.



	Income	
Fete		£250
Quiz	Entry fees	13 at £5 each
	Refreshments	£35
Membership fees		25 at £20 each

Express as a ratio

the income from the fete to the income from the quiz to the income from membership fees.

Give your ratio in its simplest form.

Fete : Quiz : Membership

£250 : £100 : £500

25 : 10 : 50

5 : 2 : 10

5:2:10

12 Rehan is on holiday in the USA.

He has \$200 to spend on clothes.

Rehan buys

- 1 pair of trainers costing \$60
- 3 T-shirts costing \$25 each.

He also wants to buy a jacket costing \$80

- (a) Has Rehan got enough money to buy the jacket?
You must show how you get your answer.

$$\begin{array}{r} \$60 \\ \$25 \\ \$25 \\ \$25 \\ \hline 135 \end{array}$$

$$\begin{array}{r} 135 \\ + 80 \\ \hline 215 \end{array}$$

No he does not have
enough to buy the \$80
jacket.
He is \$15 short.

(3)

The trainers cost \$60

The exchange rate is \$1 = £0.749

Rehan says,

"The trainers cost less than £40"

Rehan is wrong.

- (b) Using a suitable approximation, show working to explain why.

$$0.7 \times 60 = 42$$

(2)

13 Chloe is making scrunchies.

Chloe has a large number of hair bands.

Each hair band costs 8p.

She buys 100g of wool for £3

Chloe uses 1 hair band and 5g of wool to make each scrunchy.

She makes as many scrunchies as she can.

Work out the total cost of each scrunchy that she makes.

Give your answer in pence.

$$\frac{100\text{g}}{5\text{g}} = 20 \text{ scrunchies}$$

$$\frac{\pounds 3}{20 \text{ scrunchies}} = 15\text{p}$$

$$1 \text{ scrunchie} = 8\text{p} + 15\text{p} = 23\text{p}$$

23

p

13 Ellie makes hats.

She makes at least 17 hats per hour.

She is paid 46p for each hat she makes.

Reaze is a waiter.

He works 35 hours and is paid a total of £266

Show that Ellie's hourly rate of pay is more than Reaze's hourly rate of pay.



Ellie $17 \times 46p = £7.82 \text{ per hour}$

Reaze $\frac{266}{35} = £7.60 \text{ per hour}$

November 2017 – Paper 2F

(Total for Question 13 is 3 marks)

14 3 kg of flour costs £4.05

5 kg of flour and 6 kg of sugar cost £11.85

Work out the cost of 2 kg of flour and 5 kg of sugar.



$1 \text{ kg Flour} = £1.35$

$5 \text{ kg Flour} = £6.75$

$£11.85 - £6.75 = £5.10$

$6 \text{ kg sugar} = £5.10$

$1 \text{ kg sugar} = £0.85$

$2 \text{ kg flour} + 5 \text{ kg Sugar}$
 $£2.70 + £4.25$
 $£6.95$

£ 6.95

November 2023 – Paper 2F

(Total for Question 14 is 4 marks)

- 14 120 boxes cost £6
270 bags cost £10



A bag is cheaper than a box.

How much cheaper?

Give your answer in pence correct to 1 decimal place.

$$\frac{£6}{120} = 5p \text{ per box}$$

$$\frac{£10}{270} = 3.7p \text{ per bag}$$

$$5p - 3.7p$$

1.3

p

14 3 kg of carrots cost £1.80

2 kg of carrots and 5 kg of potatoes cost a total of £3.45

Work out the total cost of 4 kg of carrots and 2 kg of potatoes.
You must show all your working.

$$1 \text{ kg carrots} = 60\text{p}$$

$$\begin{array}{l} \text{£1.20} \\ \text{Carrots} \end{array} + 5 \text{ kg potatoes} = \text{£3.45}$$

$$5 \text{ kg potatoes} = \text{£2.85}$$

$$1 \text{ kg potatoes} = 57\text{p}$$

$$\begin{array}{l} 4 \text{ kg} \\ \text{Carrots} \end{array} + \begin{array}{l} 2 \text{ kg} \\ \text{potatoes} \end{array}$$

$$\text{£2.40} + \text{£1.14} = \text{£3.54}$$

£ 3.54

- 15 Steve is buying a car.
The car costs £12 000

Steve pays 25% of the cost as a deposit.
He pays the rest of the cost in 20 equal monthly payments.

How much is each monthly payment?

$$100\% = 12000$$

$$10\% = 1200$$

$$20\% = 2400$$

$$5\% = 600$$

$$\boxed{25\% = 3000}$$

£9000 left to pay

$$\frac{9000}{20} = \frac{900}{2} = 450 \text{ per month}$$

£ 450

- 15 2.5 kg of onions and 2 kg of carrots cost a total of £2.36
3 kg of carrots cost £1.74



Stuart has £2

He wants to buy 4 kg of onions.

Does Stuart have enough money to buy 4 kg of onions?

You must show how you get your answer.

$$1 \text{ kg carrots} = 58 \text{ p}$$

$$\begin{array}{l} 2.5 \text{ kg} \\ \text{Onions} \end{array} + \begin{array}{l} £1.16 \\ \text{Carrots} \end{array} = £2.36$$

$$\begin{array}{l} 2.5 \text{ kg} \\ \text{Onions} \end{array} = £1.20$$

$$\begin{array}{l} 1 \text{ kg} \\ \text{Onions} \end{array} = 48 \text{ p}$$

$$\begin{array}{l} 4 \text{ kg} \\ \text{Onions} \end{array} = £1.92$$

Yes Stuart has enough
to buy 4 kg of onions

- 16 Sam buys 20 boxes of oranges.
There are 25 oranges in each box.

500 oranges in total

Each boxes of oranges costs £7

Sam sells $\frac{2}{5}$ of the oranges he bought.

He sells each of these oranges for 40p.

He then sells each of the remaining oranges at 3 oranges for 50p.

Did Sam make a profit or did Sam make a loss?

You must show working to justify your answer.

$$£7 \times 20 = £140 \text{ paid}$$

$$\frac{2}{5} \text{ of } 500 = 200$$

$$200 \times 40p = £80$$

$$100 \times 50p = £50$$

paid £140

Made £130

Sam made a loss of £10

18 Asha buys 180 cans of cola.

The cans are sold in packs.

There are 12 cans in each pack.

Each pack costs £3



(a) Work out the total cost of the cola Asha buys.

$$\frac{180}{12} = 15 \text{ packs}$$

$$15 \times £3 = £45$$

£ 45
(3)

Ethan buys a box of 24 cans of lemonade for £7

There are 330 ml of lemonade in each can.

(b) Work out the cost of 100 ml of lemonade.

Give your answer correct to the nearest penny.

$$\frac{£7}{24} = 0.2916 \text{ per can}$$

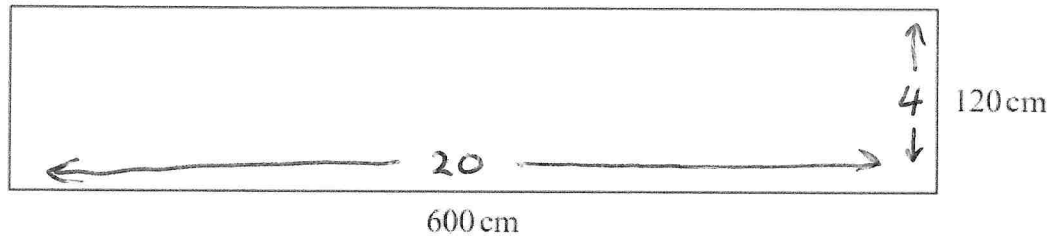
$$0.2916 = 330 \text{ ml} \quad \rightarrow \div 3.3$$

$$0.0883 = 100 \text{ ml}$$

$$8.8\text{p} = 100 \text{ ml}$$

9 p
(3)

18 The diagram shows a rectangular garden path.



Wasim is going to cover the path with paving stones.

Each paving stone is a square of side 30 cm.

Each paving stone costs £2.50

Wasim has £220 to spend on paving stones.

Show that he has enough money to buy all the paving stones he needs.

$$20 \times 4 = 80 \text{ tiles/stones}$$

$$80 \times £2.50 = £200$$

Yes Wasim has £220 and he needs £200
to buy the paving stones

19 Nimra buys a 3 kg box of sweets for £17.60

She puts the sweets into bags to sell.

Each bag contains 150 g of sweets.

Nimra fills as many bags as possible.

She will sell each bag for the same price.

Nimra wants to make a profit of at least 35%

Assuming she sells all the bags,

what is the lowest price Nimra should charge for each bag?



$$17.60 \times 1.35$$

$$= \underline{\underline{£23.76}}$$

$$\frac{3000g}{150g} = 20 \text{ bags}$$

$$\frac{£23.76}{20 \text{ bags}} = £1.188 \text{ per bag}$$

$$= £1.19$$

£ 1.19

19 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.

$$\frac{3}{4} \times \frac{7}{1} = \frac{21}{4} = 5\frac{1}{4}$$

So he would need to buy 6 pints of milk.

3 x 2 pints

3 x 93p

£ 2.79
(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.

He may have to buy more milk,

So he may have to spend more money.

(1)

- 19 Boxes of chocolates cost £3.69 each.
A shop has an offer.



Boxes of chocolates

3 for the price of 2

Ali has £50

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

How many boxes of chocolates can Ali get?

$$\begin{aligned} \textcircled{3} \quad 3 \text{ boxes} &= £7.38 \\ 6 \text{ boxes} &= £14.76 \\ 9 \text{ boxes} &= £22.14 \\ 18 \text{ boxes} &= £44.28 \\ +1 \quad 19 \text{ boxes} &= £47.97 \end{aligned}$$

19

20 Pens and pencils are sold in a shop.

12 pencils cost £1.80

The ratio of the cost of a pen to the cost of a pencil is 7:3

Work out the cost of 5 pens.



$$\frac{£1.80}{12} = 15p \text{ per pencil}$$

Pen : Pencil

7 : 3

35p : 15p

$$35p \times 5$$

£ 1.75

May 2020 – Paper 2F

(Total for Question 20 is 4 marks)

21 The diagram shows a plan of Jason's garden.

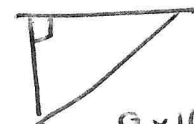
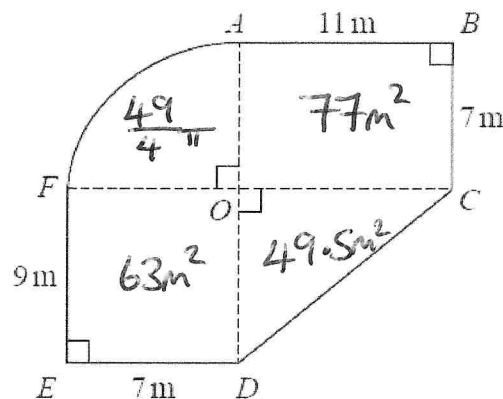
$ABCO$ and $DEFO$ are rectangles.

CDO is a right-angled triangle.

AFO is a sector of a circle with centre O and angle $AOF = 90^\circ$



$$\frac{1}{4} \times \pi \times 7^2$$



$$\frac{9 \times 11}{2} = 49.5$$

Jason is going to cover his garden with grass seed.

Each bag of grass seed covers 14m^2 of garden.

Each bag of grass seed costs £10.95

Work out how much it will cost Jason to buy all the bags of grass seed he needs.

$$\frac{49}{4} \pi + 77 + 63 + 49.5 = 227.98\text{m}^2$$

$$\frac{227.98}{14} = 16.28$$

$$17 \text{ bags} \times £10.95$$

$$= £186.15$$

$$£186.15$$

22 Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

weight of potato : weight of cheese : weight of onion = 9 : 2 : 1

Natalie needs to make 6000 g of potato cakes.

Cheese costs £2.25 for 175 g.

Work out the cost of the cheese needed to make 6000 g of potato cakes.



$$\begin{array}{l} \overbrace{\hspace{1.5cm}}^{6000g} \\ P : C : On \\ 9 : 2 : 1 \\ 4500g : 1000g : 500g \end{array}$$

Cheese

$$\begin{array}{l} £2.25 = 175g \\ £0.3214 = 25g \\ £12.857 = 1000g \end{array}$$

$\div 7$
 $\times 40$

£ 12.86

24 Sean pays £10 for 24 chocolate bars.

He sells all 24 chocolate bars for 50p each.

Work out Sean's percentage profit.

$$24 \times 50p = £12$$

$$\frac{12}{10} = 1.2$$

$$= 120\%$$

20 %

May 2020 – Paper 1F

(Total for Question 24 is 3 marks)