

Answers

Write your name here

Surname	Other names
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**Edexcel
Functional Skills**

Centre Number

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Candidate Number

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Mathematics

Level 2



17–21 June 2013

Time: 1 hour 30 minutes

Paper Reference

FSM02/01

You must have:

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, compasses.

Total Marks

--

My signature confirms that I will not discuss the content of the test with anyone until the end of the 5 day test window.

Signature: _____

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.
- Sign the declaration.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**

Information

- The total mark for this paper is 48.
- The marks for each question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- **Where you see this sign you must show clearly how you get your answers because marks will be awarded for your working out.**
- **Check your working and your answers at each stage.**



Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.

Turn over ►

P42465A

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PEARSON

SECTION A: The restaurant

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Mr Chopra is the manager of a restaurant.
On Saturday he needs people working at these times.

Time	Number of people needed
1100 – 1500	3
1800 – 2300	3
2300 – 2400	2

Five people work on Saturday.
The chart below shows the number of hours each of them can work.

Name	Hours on Saturday
Adit	4
Bir	7
Deva	6
Edi	5
Jan	7

Adit + Edi
Edi *Edi*
 ✓ 5+2 4+3 ✓
 ✓ 4+2 3+3
 X
 5+2 4+3 → *Edi has to be followed*

- People who work more than 5 hours must have their hours split into two parts.
- Each part must be at least 2 hours.
- People who work 5 hours or less never have split hours.

(a) Plan the staff rota for Mr Chopra.
Remember to check your answer. (3)

Complete the rota on the next page.

Edi first + fixed.
Deva. 4+2 (start clean, work end).
Bir 4+3 - full in 4 (full in last hour)
Jan 4+3 - full in
Adit - remaining



Tick (✓) the boxes to show the hours when people are working.

	1100	1200	1300	1400	1800	1900	2000	2100	2200	2300
	-	-	-	-	-	-	-	-	-	-
	1200	1300	1400	1500	1900	2000	2100	2200	2300	2400
4	Adit				✓	✓	✓	✓		
7	Bir	✓	✓	✓				✓	✓	✓
6	Deva	✓	✓	✓					✓	✓
5	Edi				✓	✓	✓	✓	✓	
7	Jan	✓	✓	✓	✓	✓	✓			

Mr Chopra wants to employ a delivery driver for 20 hours per week. He needs the driver for all 52 weeks in the year.

Mr Chopra is going to pay the driver £6.34 per hour. He has a budget of £7000 to pay the driver for one year.

(b) Is £7000 enough to pay the driver for one year? Show why you think this. (3)

Use the box below to show clearly how you get your answer.



How much will he have to pay

$$20 \times 52 \times 6.34 = 6593.60$$

How much has he got

$$£7000$$

Compare

Yes £7000 is enough he will only need £6593.60.

(Total for Question 1 is 6 marks)



2 The restaurant uses 98 kg to 112 kg of rice each week.

Mr Chopra wants to buy the rice for the next 4 weeks.
He can buy the rice from two different suppliers.

Sharma wholesalers

Rice
20 kg bags
£31.99 each bag

Khan bulk buy

Rice
25 kg bags
£43.95 each bag

Mr Chopra is going to buy all the rice from one supplier.
He wants to pay the cheapest total price for the rice.

Which supplier should Mr Chopra buy the rice from?
What is the total cost? Show how you have checked your answer.

(6)

Use the box below to show clearly how you get your answer.



Compare.

- ① Work out how much rice Chopra will use.
- ② Work out price at Sharma
- ③ Work out price at Khan
- ④ Compare
- ⑤ Check.

Rice used

$$4 \times 112 = 448 \text{ kg.}$$

Sharma.

$$\frac{448}{20} = 22.4 \text{ bags}$$

He will buy 23 bags

$$= 23 \times 31.99 = \underline{\underline{£735.77}}$$

Khan

$$\frac{448}{25} = 17.92$$

He will buy 18 bags

$$= 18 \times 43.95 = \underline{\underline{£791.10}}$$



Compare.

Sharma is cheapest and will cost £735.77
so Chopra should buy it from here

Check

$$791.10 \div 43.95 = 18$$

$$753.77 \div 31.99 = 23$$

(Total for Question 2 is 6 marks)



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- 3 Mr Chopra has to prepare a report for a meeting. The table shows his profit from sit in meals and from take away meals for each of the last three years.

	Sit in meals profit (£)	Take away meals profit (£)
2010	17 200	10 500
2011	19 100	11 200
2012	18 900	13 900

Mr Chopra needs to interpret and compare this information for the meeting.

(a) Write **two** statements for Mr Chopra.

(2)

Write your statements in the box below.

- ① He makes more profit each year from sit in meals than from take away
- ② Profits from take away have increased each year

Mr Chopra wants to display the information about the amount of profit in each of the last three years.

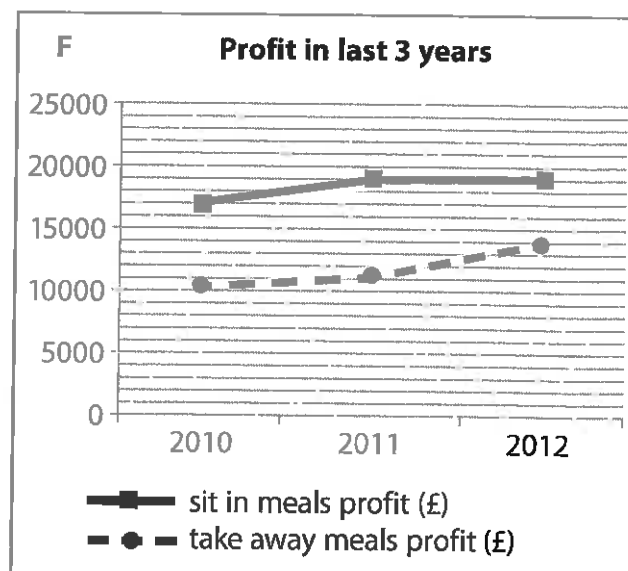
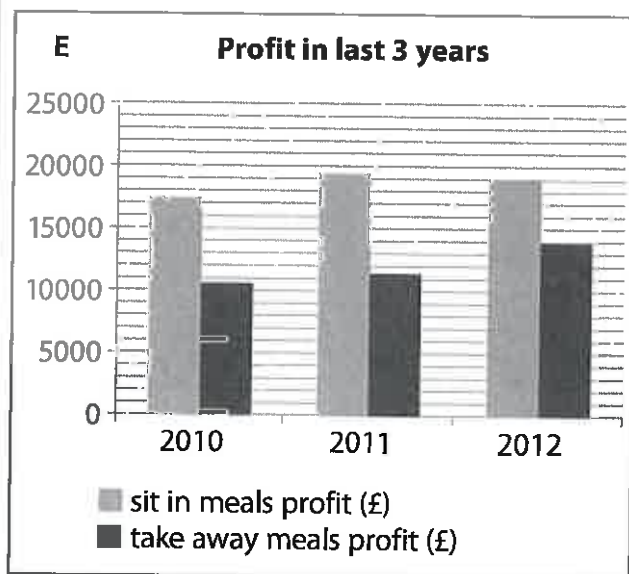
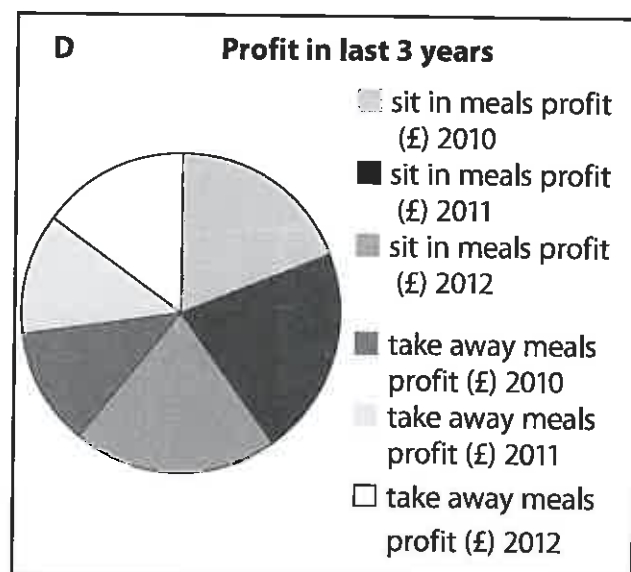
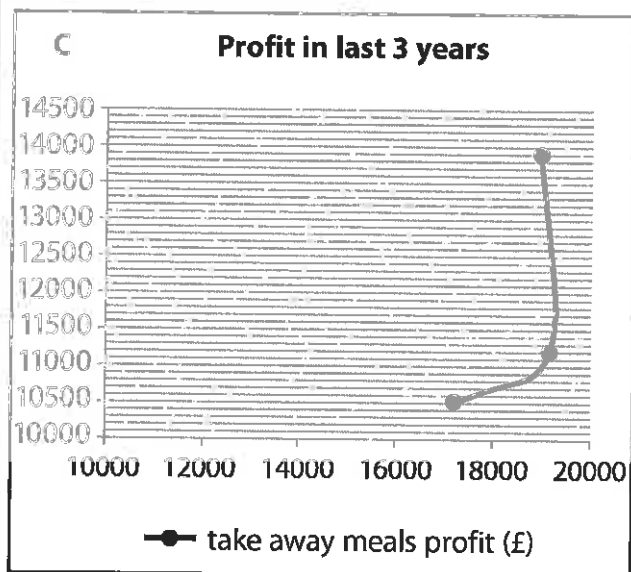
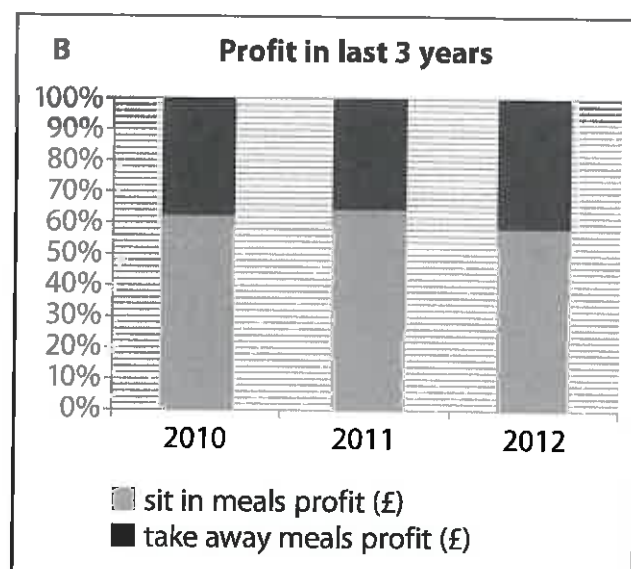
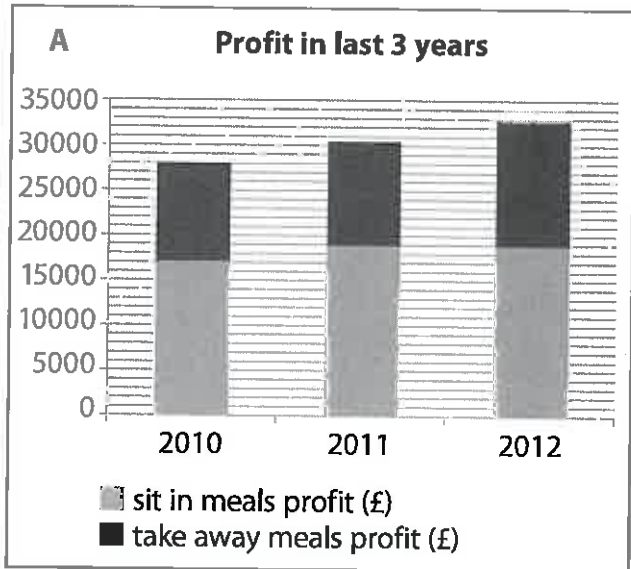
(b) Which of the graphs or charts on page 7 could Mr Chopra use to show the amount of profit in each of the last three years?

(2)

Tick (✓) **all** the graphs or charts which are suitable in the boxes below.

A	B	C	D	E	F
✓				✓	✓





(Total for Question 3 is 4 marks)



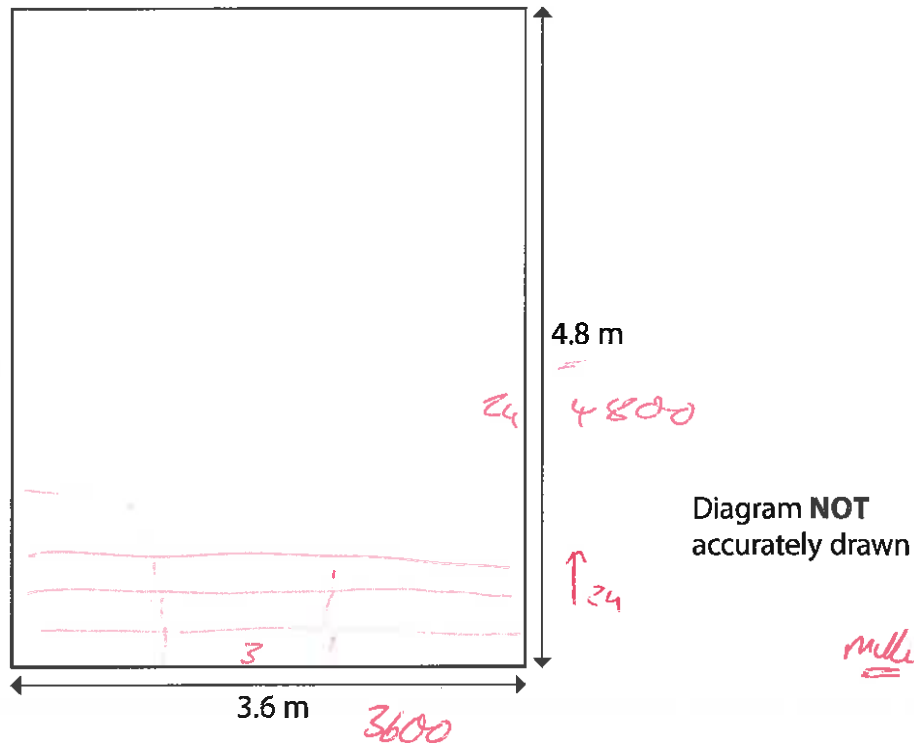
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SECTION B: The dining room

Answer all questions in this section.

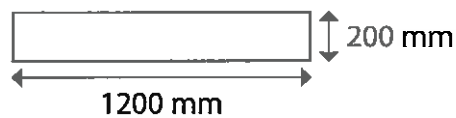
Write your answers in the spaces provided.

- 4 James is going to cover his dining room floor with laminate flooring. The dining room floor is 3.6 m by 4.8 m.



The laminate flooring is sold in packs.

Each pack has 8 pieces of laminate.
Each piece is 1200 mm by 200 mm.



James buys 10 packs.

Does James have enough laminate flooring to cover the dining room floor?

(3)

① Work how many pieces

$$3600 \div 1200 = 3$$

$$3 \times 24 = 72 \text{ tiles}$$

He has $8 \times 10 = 80$ tiles
Yes do it



Use the box below to show clearly how you get your answer.



(1) Convert $4.8 = 4800 \text{ mm}$
 $3.6 = 3600 \text{ mm}$

(2) Find Area of room

(3) Area of tile

(4) How many lots of tiles will fit in the room.

Area of Room

$$4800 \times 3600 = 17280000$$

Area of tile

$$200 \times 1200 = 240000$$

Tiles needed

$$\frac{17280000}{240000}$$

$$= 72 \text{ tiles}$$

He has 80 tiles.

Yes he has enough.

(Total for Question 4 is 5 marks)



5 James wants new ceiling lights for the dining room.

He finds a formula to work out the amount of light he needs for the room.

$$A = 25LW$$

A = the amount of light (watts)

L = the length of the room (m)

W = the width of the room (m)

The dining room has a length of 4.8 m and a width of 3.6 m.

James finds a ceiling light that he likes.

Each ceiling light provides 180 watts of light.

(a) How many of these ceiling lights does James need for the dining room?

(4)

Use the box below to show clearly how you get your answer.



- ① Use the formula to find how many watts James needs
- ② Work out how many lights James needs

Formula

$$\begin{aligned} A &= 25LW \\ &= 25 \times L \times W \\ &= 25 \times 4.8 \times 3.6 \\ &= 432 \end{aligned}$$

Bulbs

$$\frac{432}{180} = 2.4$$

So he will need to buy 3 lights.



James chooses new dining room furniture.

The normal price was £699

The furniture shop advert says 'up to 70% off'

The sale price is £249

James works out he got less than 70% off.

(b) Is James correct?

Show why you think this.

(3)

Use the box below to show clearly how you get your answer.



- ① Work out what 70% of the normal price is
- ② Take this away from 699 to see how much it would be for 70% discount
- ③ Compare with £249

① 70% of 699

$$\frac{70}{100} \times 699 = 489.30$$

② $699 - 489.30 = 209.70$

③ So James got less than 70% off as this would have been £209.70 whereas the price was £249 so James is correct.

(Total for Question 5 is 7 marks)



- 6 James invites some friends for a meal in his new dining room. He has this recipe for lentil stew for 4 people.

Lentil Stew
Serves 4 people

150 g mushrooms
250 g lentils
8 cherry tomatoes
1.2 litres vegetable stock
1 carrot
1 onion
1 turnip
Herbs to taste

James has 600 g of lentils and 22 cherry tomatoes.
He knows he has enough of all the other ingredients.

James wants to make enough lentil stew for 10 people.

Does James have enough lentils and enough cherry tomatoes to make lentil stew for 10 people?

(4)

Use the box below to show clearly how you get your answer.



- ① Work out the multiplier from 4 to 10
- ② Work out how many lentils James will need
- ③ Compare with 600g he has
- ④ Work out how many tomatoes James needs
- ⑤ Compare with 22 tomatoes he has
- ⑥ Read conclusion

① $= 10 \div 4 = 2.5$

② $250\text{g} \times 2.5 = 625\text{g}$ lentils

③ So James hasn't got enough lentils.

④ $8 \times 2.5 = 20$ tomatoes

⑤ So James has enough tomatoes.



⑥ So James has not got enough lentils for the stew as he needs 625g and only has 600g.

He does have enough tomatoes as he needs 20 and has 22

(Total for Question 6 is 4 marks)



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SECTION C: Tote bags

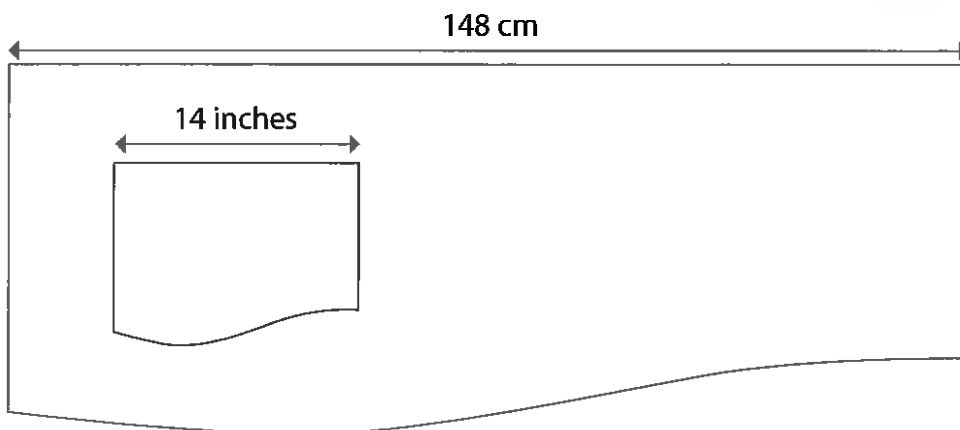
Answer all questions in this section.

Write your answers in the spaces provided.

- 7 Mel designs and makes tote bags.



The material she uses is 148 cm wide.
She needs to cut pieces of the material 14 inches wide.



Diagrams **NOT**
accurately drawn

Mel wants to know how many pieces she can cut across the width of the material.

Use 1 inch = 2.54 cm

How many pieces can Mel cut across the width of material?
Show a check for your answer.

(4)



Use the box below to show clearly how you get your answer and to show your check.



$$1 = 2.54 \text{ cm}$$

$$1 \text{ inch} = 2.54 \text{ cm}$$

$$14 \text{ inches} = 14 \times 2.54 = 35.56 \text{ cm}$$

So she can have

$$\frac{148}{35.56} = 4.16$$

So 4 pieces

(Total for Question 7 is 4 marks)



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8 Mel wants a loan from the bank.

She shows these sales figures to the bank manager.

Quarter 1 Jul – Sep	Quarter 2 Oct – Dec	Quarter 3 Jan – Mar	Quarter 4 Apr – Jun
£13 800	£14 200	£14 900	

The bank manager says

I need to see your sales figures for a whole year.

You can have the loan if your mean sales are £14 500 or more per quarter over the whole year.

Mel has to work out what her sales figure for Quarter 4 needs to be.

(a) What are the minimum sales that Mel needs in Quarter 4 to get the loan?

(2)

Use the box below to show clearly how you get your answer.



Bank manager
mean 14 500

$$\text{Total } 14500 \times 4 = 58000$$

So Mel has

$$13800 + 14200 + 14900 \\ = 42900 \quad \text{so far.}$$

$$\text{So she } 58000 - 42900$$

$$= \underline{\underline{15100}} \text{ on the last quarter}$$



Mel makes notes about what she has to do on Friday.

- Start work 9.40 am
- Make tote bags $3\frac{1}{4}$ hours
- Order supplies 20 minutes
- Lunch 45 minutes
- Press and pack 8 bags (10 minutes per bag)
- Must finish by 15.30

(b) Does Mel have enough time to do everything on Friday?

(4)

Use the box below to show clearly how you get your answer.



h	m	
3h	15	
+	20	
+	45	
+	80	
	160	
	1	
2h	40	
2h		
5h	40m	

$\overbrace{9:40}^3 \quad \overbrace{12:40}^{2h} \quad \overbrace{14:40}^{20} \quad \overbrace{15:00}^{20} \quad 15:20$

So yes she does she will finish by 15:20.

(Total for Question 8 is 7 marks)



9 Mel charges £35 for each tote bag.

She wants to start selling her tote bags in America.

The price of the same type of tote bag in America is \$59

The exchange rate is £1.00 = \$1.61

Mel thinks her tote bags are cheaper than the bags in America.

(a) Is Mel correct?

Show why you think this.

(3)

Use the box below to show clearly how you get your answer.



① Work out ~~cost~~ £35 is in dollars

② Compare with 59 dollars

③ Decide if it is cheaper.

$$\textcircled{1} \quad 35 \times 1.61 = \$56.35$$

③ This is less than \$59

③ So Mel is correct.



Mel decides to make mini tote bags.
She is going to put the mini tote bags in boxes.

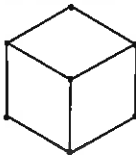
Mel plans to design a box in the shape of a cuboid.
She needs a 3D drawing of the box.

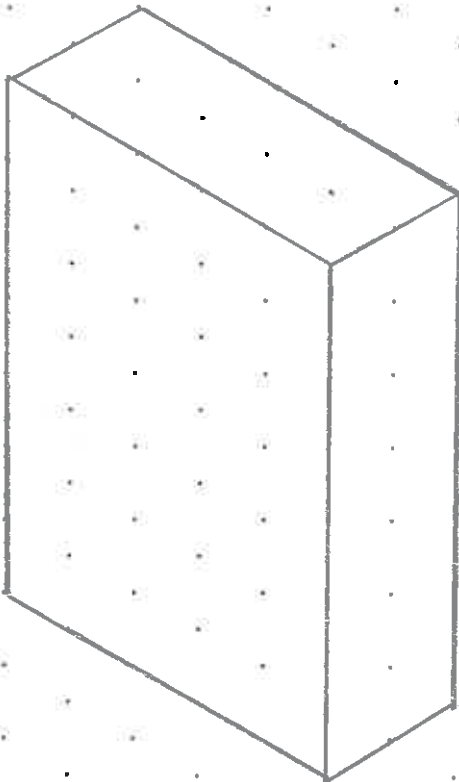
The box will be 7 inches by 5 inches by 2 inches.

(b) Make an isometric drawing of the box.
Remember to use the key.

(2)

Use the isometric paper below for your 3D drawing.

Key:  is a cube 1 inch by 1 inch by 1 inch



(Total for Question 9 is 5 marks)

TOTAL FOR PAPER IS 48 MARKS



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