

# Sample Assessment Material

with example answers and examiner marks

These marked sample assessment papers are to aid in teaching and learning and should be used as a guide only.



✓

Write your name here

Surname	Other names
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**Edexcel Functional Skills**

Centre Number	Candidate Number												
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# Mathematics

## Level 2

Sample Assessment Material <b>Time: 1 hour 30 minutes</b>	Paper Reference <b>FSM02/01</b>
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<b>You must have:</b> Pen, calculator, HB pencil, eraser, ruler graduated in centimetres and millimetres, protractor, pair of compasses.	Total Marks <span style="font-size: 2em; color: red;">42</span>
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### 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.*
- **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 should show clearly how you get your answers as marks will be awarded for your working out.**



### Advice

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

Turn over ►

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### Section A: Jobs

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Barry interviews people for jobs.  
Each person he interviews gives him a claim form.  
One person gave him the claim form below.
- Barry checked the claim form and found some errors.  
He put a ring round all the errors on the form.

Claim form		
Complete all sections.		
Reason for claim	Details	Total
Train fare	Return ticket	£ 122.50
Car travel	28 miles at (27p) per mile	(£ 8.16)
Travel refreshments	£4.80	(£ 7.20)
	£3.40	
Total claim		(£ 137.36)

The cost of car travel is now 29p per mile.

What should the correct Total claim be?

(4)

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



~~Car travel 28 miles at ~~27p~~<sup>29</sup> per mile~~

~~Total ~~75.6p~~  $2.7 \times 28 = 75.6p$~~

~~4.80 +~~

~~3.40~~

~~8.20~~

~~Total claim~~

Car travel 28 miles at 29p per mile

Total 29p  $\times$  28 = £8.12

Total refreshments = £4.80 + £3.40 = £8.20

Total claim = £8.12 + £8.20 + £12.50

= £28.82

4

(Total for Question 1 = 4 marks)

2 Barry has to organise interviews on one day.

5 people are going to be interviewed for a job.  
The 5 people are Ali, Ben, Charlie, Dan and Erica.

Each person will have 3 separate interviews.  
Each person will be interviewed once in each of 3 rooms.

Anyone **not** being interviewed will wait in the waiting room.

- Each interview will last **15** minutes.
- There are **5** minutes between each interview.
- The first interviews will start at **9.00 am**.
- All rooms can be used for interviews at the same time.

Room 1	Room 2	Room 3	Waiting room

Draw a chart or table to show the times and rooms for the 5 people being interviewed.

(4)

Use the box below to show your answer clearly.

Name	Time	Room no.	Time	Room no.
Ali	9.00	1 ✓	9.20	2 ✓
Ben	9.00	2 ✓	9.20	3 ✓
Charlie	9.00	3 ✓	9.20	W
Don	9.00	W	9.20	W
Erica	9.00	W	9.20	1 ✓
Ali	9.40	3 ✓	10.00	W
Ben	9.40	W	10.00	W
Charlie	9.40	W	10.00	1 ✓
Don	9.40	1 ✓	10.00	2 ✓
Erica	9.40	2 ✓	10.00	3 ✓
Ali	10.20	W	<p>Fully correct. Interval not explicitly shown but 20 minute gap between interviews shows that interval has been included.</p>	
Ben	10.20	1 ✓		
Charlie	10.20	2 ✓		
Don	10.20	3 ✓		
Erica	10.20	W		

(4)

(Total for Question 2 = 4 marks)

3 Barry has been asked to compare the pay for four similar jobs advertised in a news paper.

<p>Able Computer Sales <i>Sales Consultant</i></p> <p>Pay: £23,000 per year</p>	<p>Beta IT Support <i>Sales Assistant</i></p> <p>Full time: 30 hours per week Pay: £15 per hour</p>
<p>Compu Systems <i>Sales Agent</i></p> <p>Pay per month will be £1800, plus commission of 1% of monthly sales. Average monthly sales are £22,000.</p>	<p>Digital Hardware <i>Sales Adviser</i></p> <p>Salary of £20,000 per year + team bonus of 20% of salary.</p>

(a) How much does Beta IT Support pay per year?

(2)

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



$$15 \times 30 = 1 \text{ week} = \pounds 450 \quad \checkmark$$

$$\pounds 450 \times 52 \text{ weeks in a year} = \underline{\underline{\pounds 23400}} \quad \checkmark$$

(2)

(b) Which job pays the most money?

(6)

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

A \$23,000 ✓

B \$23,400 ✓

~~\$22,000~~ ✗

D  $\$20,000 \times 1.2 = \$24,000$  ✓

Digital Hardware pays the most. ✓ ft

1 + 2 = 3

- Attempt has been made to convert A, B, D ~~old~~ salaries to yearly amounts
- No working shown for C - the monthly sales figure has been used in error
- Yearly salary for D has been correctly calculated.
- Final decision (Digital Hardware) is correct for candidate's figures.

(Total for Question 3 = 8 marks)



### Section B: Mid-Shire Council

Answer all questions in this section.

Write your answers in the spaces provided.

- 4 A man has complained to Mid-shire Council.  
He says that a neighbour's hedge is causing loss of light to his garden.



When the hedge is too high, the council can order the neighbour to cut the hedge.  
The council uses this formula to work out the height allowed for a hedge.

$$H = DA \div L$$

H = The height of hedge allowed (m)

D = Direction factor

A = The area of the garden affected by the hedge (m<sup>2</sup>)

L = The length of the hedge (m)

The direction factor of the man's garden is 0.55

The area of the man's garden affected by the hedge is 40.5 m<sup>2</sup>.

The length of the hedge is 9 m.

The height of the hedge is 3 m.

Should the council order the neighbour to cut the hedge?

(3)

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



$$\textcircled{1}. 35 \times 40.5 \text{m}^2 \div 9 = 2.475 \text{m}$$

Figures substituted  
correctly

correct answer

~~No they shouldn't as~~ Yes they should as  
it is over  $\frac{1}{2}$  a metre over the height allowed.

Correct decision made

2 + 1 =

3

(Total for Question 4 = 3 marks)

5 Mid-shire Council runs a service which delivers meals to elderly people.

The council uses five vans to deliver meals.

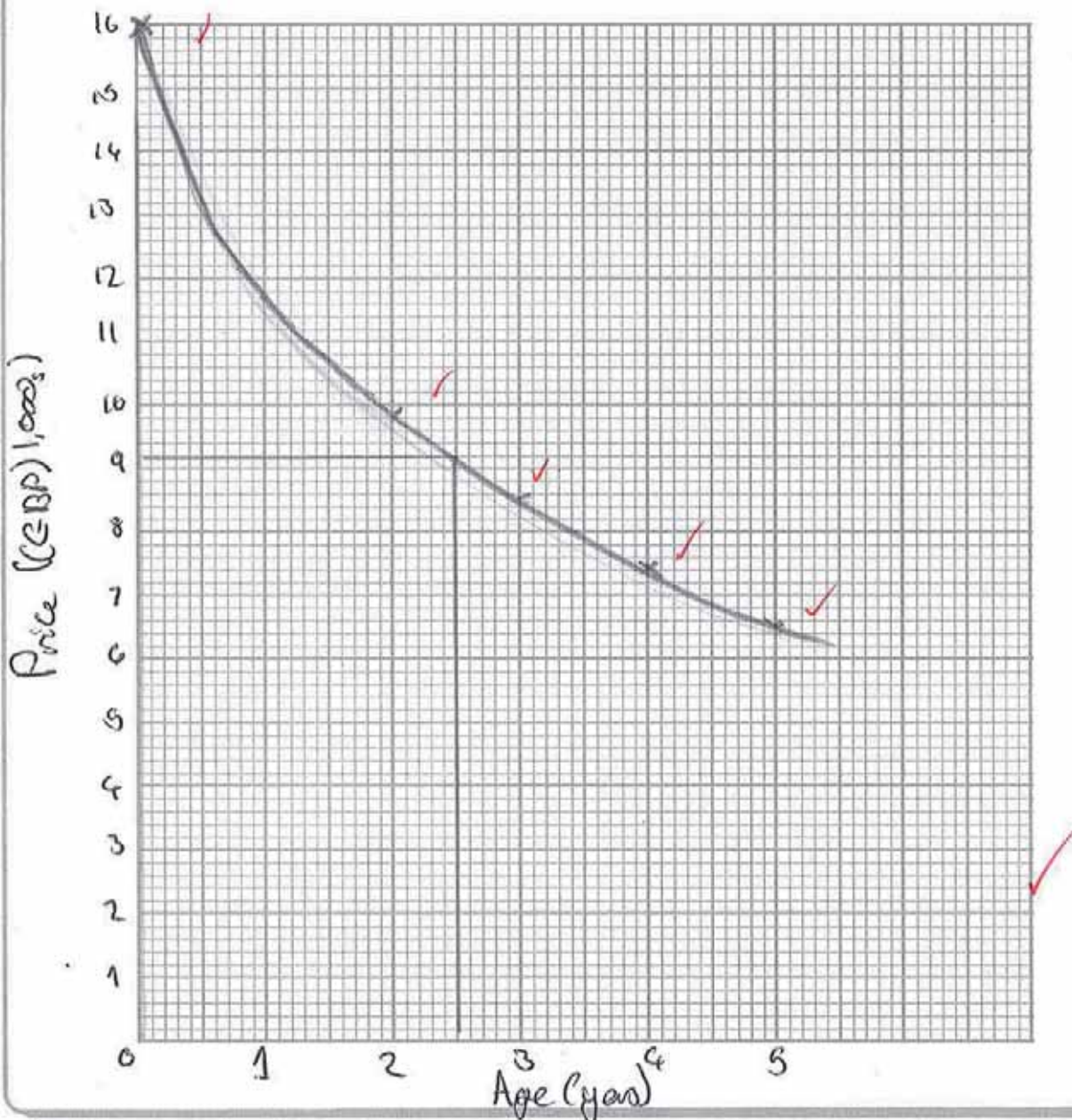
The vans are the same make and model.

The table below gives information about the value and ages of the five vans.

New	1 year old	2 years old	3 years old	4 years old	5 years old
£16 000	£ 11 500	£9800	£8500	£7400	£6500

The council want to be able to estimate the value of a van using its age.

(a) Draw a graph the council could use to estimate the value of a van. (3)



The council wants to buy another van of the same make and model to deliver meals.

One van is 2.5 years old.

(b) How much should the council expect to pay for the van?

(2)

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



You draw a line from the x-axis being the years from 2.5 years up to the line of best fit and then go across from where it hits the line to the y-axis to get the price in (£BP/1000s)

At 2.5 years old they should expect to pay:

£9,200

(a) Graph - fully correct with scale and labelled axes

(b) Candidate has used graph correctly to come up with an appropriate estimate

$3 + 2 = 5$

(Total for Question 5 = 5 marks)



Jenny has to reduce the cost of grit mixture for the council.  
She recommends changing to the following mixture.

**Jenny's mixture**

Grit mixture has a salt content of 25% by weight.

The council will still use 300 tonnes of this grit mixture **each day** the roads are icy.  
The cost of materials has **not** changed.

It is predicted that there will be 29 days in 2010/11 when the roads are icy.  
Jenny compares the cost of her plan with last year's plan for 29 days.

Jenny says her plan will cost less than last year's plan.

(b) What is the difference in cost for the council if they use Jenny's mixture for 2010/11? (6)

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



Cost of last year. ~~£316150~~ 89637

$$\begin{aligned} \text{Salt cost} &= 75 \times \$71.95 \\ &= \$5396.25 \checkmark \end{aligned}$$

$$\begin{aligned} \text{Sand cost} &= 225 \times \$12.21 \\ &= \$2747.25 \checkmark \end{aligned}$$

$$\text{Total cost} = \$8143.5 \checkmark$$

The cost of Jenny's grit mixture has been worked out correctly.

$$3 + 0 = \textcircled{3}$$

$$\begin{array}{r} \text{Difference} = 9637^6 - \\ \underline{8143.5} \\ 1593 \\ \quad 4 \end{array} = \rightarrow \underline{\underline{1593.5}}$$

The candidate has attempted to find the difference <sup>in cost</sup> between the two mixtures but has made an error. No attempt has been made to work out the cost for 29 days.

(Total for Question 6 = 8 marks)

### Section C: Garden

Answer all questions in this section.

Write your answers in the spaces provided.

- 7 Jeba grows plants.  
She uses liquid plant food.

#### Concentrated Liquid Plant Food

Bottle contains: 1500 ml plant food

*Instructions to feed each plant:*

Mix 15 ml of plant food with 1 litre of water

Jeba uses 15 ml of plant food with 1 litre of water to feed **1** plant.

She has 9 plants growing in the greenhouse.

The plants in the greenhouse need feeding with plant food **once a week**.

She has 11 plants growing in the vegetable plot.

The plants in the vegetable plot need feeding with plant food **twice a week**.

How many bottles of plant food does Jeba use in 12 weeks? (4)

8 Jeba uses food waste to make compost.

Her compost bin is in the shape of a cuboid.  
The compost bin has length 65 cm, width 64 cm  
and height 120 cm.



Diagram NOT  
accurately drawn

Volume of a cuboid = length  $\times$  width  $\times$  height

Jeba fills the compost bin completely with food waste.

The food waste becomes compost and reduces in volume by 40%.

(a) What is the volume of the compost **after** it has been reduced by 40%? (3)

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

$65\text{cm} \times 64\text{cm} \times 120\text{cm} = 499200\text{cm}^3$  ✓  
 $\frac{0.6}{\underline{\hspace{1cm}}}$  ✓  
 $299520\text{cm}^3$  ✓

~~444200~~

Candidate has worked out volume  
of bin correctly then found 60%  
straight away.

(b) Show how you can check your answer to (a). Write your check in the box below. (2)

$499200\text{cm}^3 = 100\%$   
 $49920\text{cm}^3 = 10\% \times 6 = (299520\text{cm}^3 +)$   
 $\times 4 = 199680\text{cm}^3$   
 $\underline{\hspace{1cm}}$   
 $499200\text{cm}^3$  ✓



Jeba can cover  $0.25 \text{ m}^2$  of the vegetable plot with 1 litre of compost.

The vegetable plot is a rectangle which measures 11 m by 7 m.

$$1 \text{ litre} = 1000 \text{ cm}^3$$

$$1000 \text{ litres} = 1 \text{ m}^3$$

(c) Can Jeba cover all of the vegetable plot with compost from **one** compost bin? (4)

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

$11 \text{ m} \times 7 \text{ m} = 77 \text{ m}^2 \checkmark \rightarrow \text{Box}$  correct area  
 $499200 \text{ cm}^3 = 499.2 \text{ litres} \rightarrow \text{Bin}$  (a) converted to litres correctly

$1 \text{ litre} = 0.25 \text{ m}^2 \text{ of Box}$   
 $4 \text{ litres} = 1 \text{ m}^2$   
 $499.2 \div 4 = 124.8 \text{ m}^2$  } area that could be covered with compost from bin correctly worked out.

Yes he can.  $\checkmark$  correct decision

$$1 + 3 = \textcircled{4}$$

(Total for Question 8 = 9 marks)

9 Jeba wants to grow potatoes.



(Source: [www.gardening-tools-direct.co.uk](http://www.gardening-tools-direct.co.uk))

Here is some information Jeba finds out about potatoes.

Type of potato	Sowing distances	Total weight of potatoes from each plant in one year
King Edward	<ul style="list-style-type: none"><li>• sow 20 cm deep</li><li>• 37.5 cm between each seed potato in a row</li><li>• rows 75 cm apart</li></ul>	5 kg

Jeba will plant potatoes in a rectangular plot 6 m wide by 10 m long. She will use all of the plot for growing potatoes.

Jeba will grow potatoes to sell. She wants to know the weight of potatoes she can grow in one year.

What weight of potatoes can Jeba grow in one year?

(3)

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



$$6\text{m} \times 10\text{m} = 60\text{m}^2$$

Per row you get 16 potatoes.

No of rows = 6

$$\text{No of potatoes total} = 16 \times 6 = 96 \text{ potatoes}$$

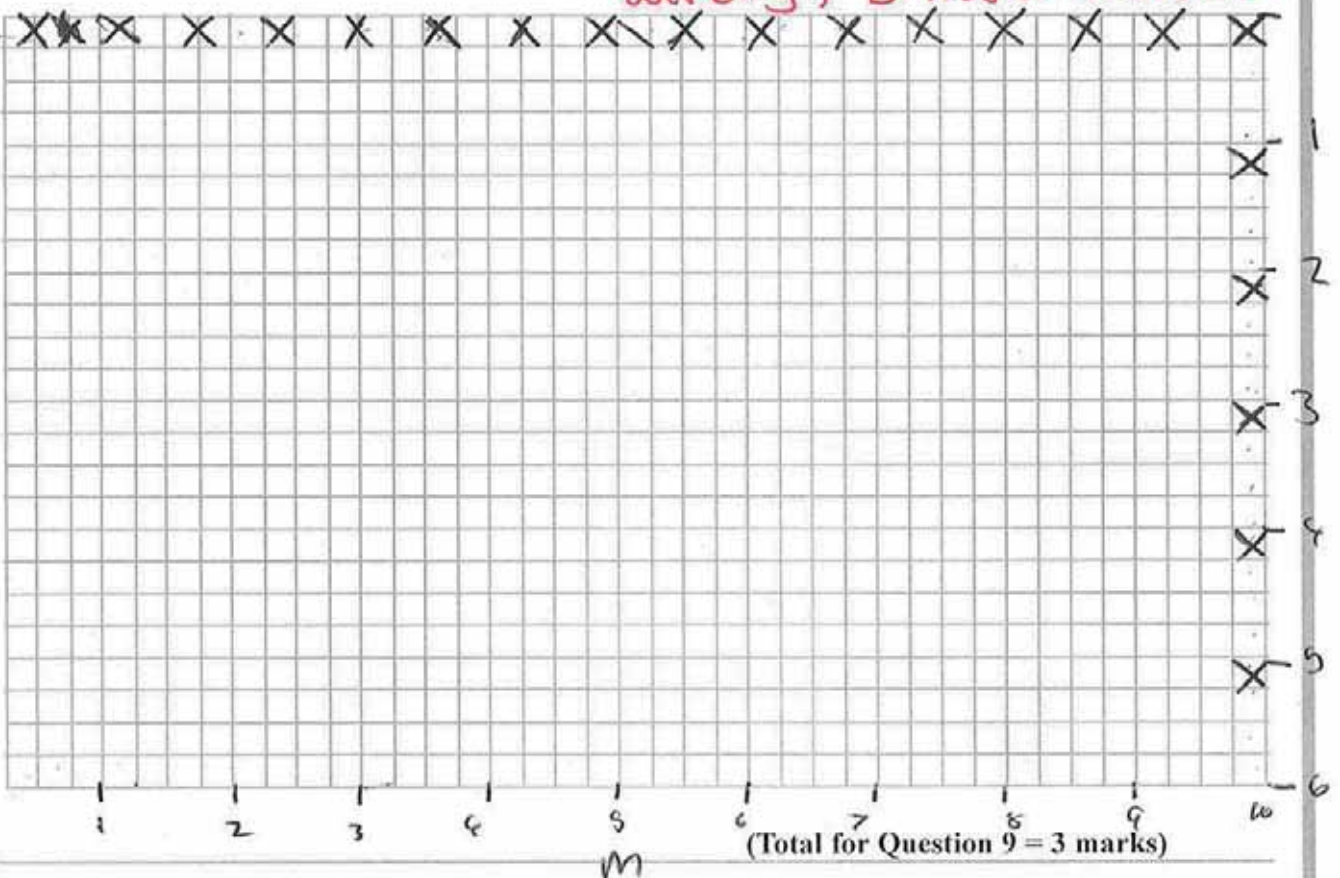
$$\text{Total weight} = 96 \times 3\text{kg} = 288\text{kg in weight}$$

correct calculation for weight

- from diagram (but not correct for 10m side)  
correct for 0.75m between rows  
on 6m side

3

As all candidates' answers are supported by their diagram and working, 3 marks awarded



TOTAL FOR PAPER = 48 MARKS

### Section A: Jobs

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