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Surname

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**Pearson Edexcel  
Functional Skills**

Centre Number

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# Mathematics

**Level 2**



9 – 13 November 2015

**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 a **black** 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.*
- **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.**
- **This sign shows where marks will be awarded for showing your check.**



## Advice

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

Turn over ►

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**PEARSON**

**SECTION A: School run**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 1 Nikki drives her children to school each day.  
She wants them to walk instead.

Nikki sees this comment in a newspaper.

'The average family can save £400 a year if the children walk to school!'

Nikki finds out that the children go to school for 190 days each year.  
She drives a total of 4.8 miles each day on the school run.  
It costs 13.12p to drive one mile in her car.

- (a) Can Nikki save £400 each year if her children walk to school?  
You must show a check of your working.

(5)

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

Use the box below to show your check.



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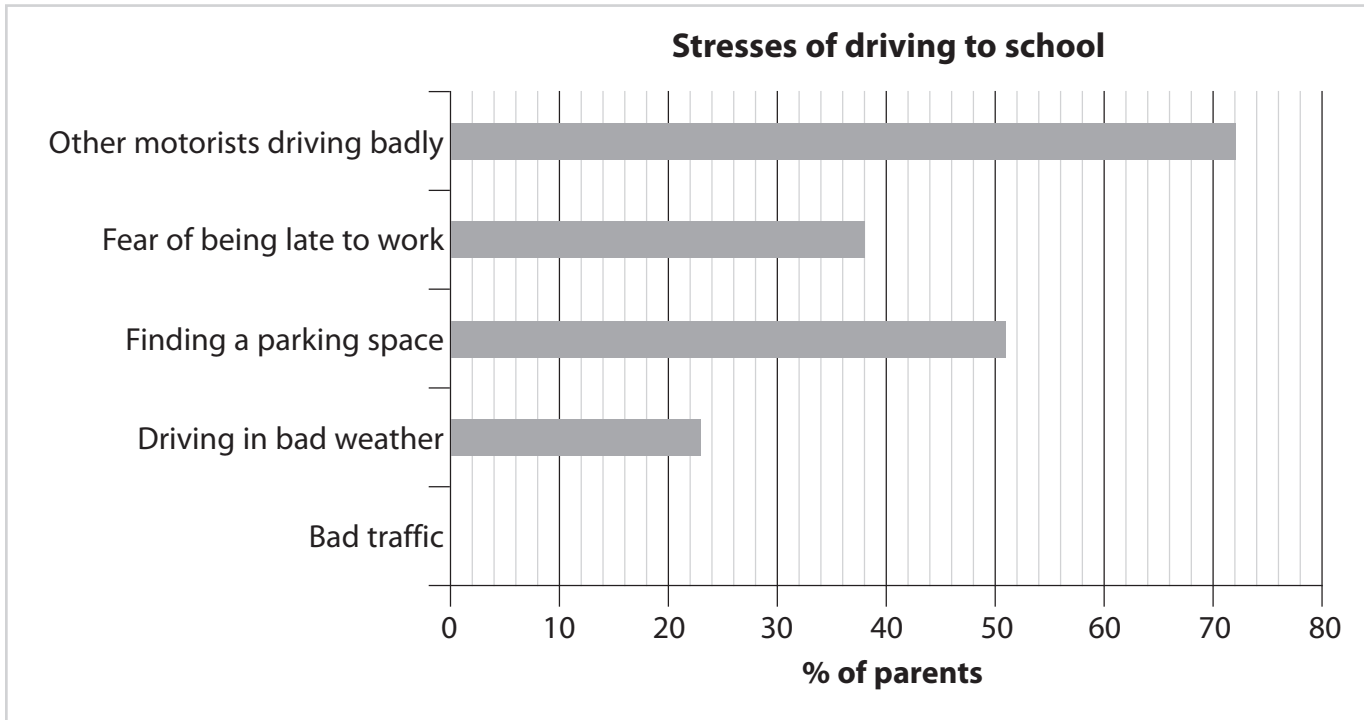


Nikki wants to set up a walking bus.

This is an organised group of children who walk to and from school together with adults.

Nikki makes a poster to promote walking instead of driving.  
She makes a graph for the poster to show the stresses of driving to school.

The information for the graph comes from a survey of 3000 parents.



Nikki knows the number of parents who think 'bad traffic' is stressful is 1830

(b) Complete the graph for Nikki.

(3)

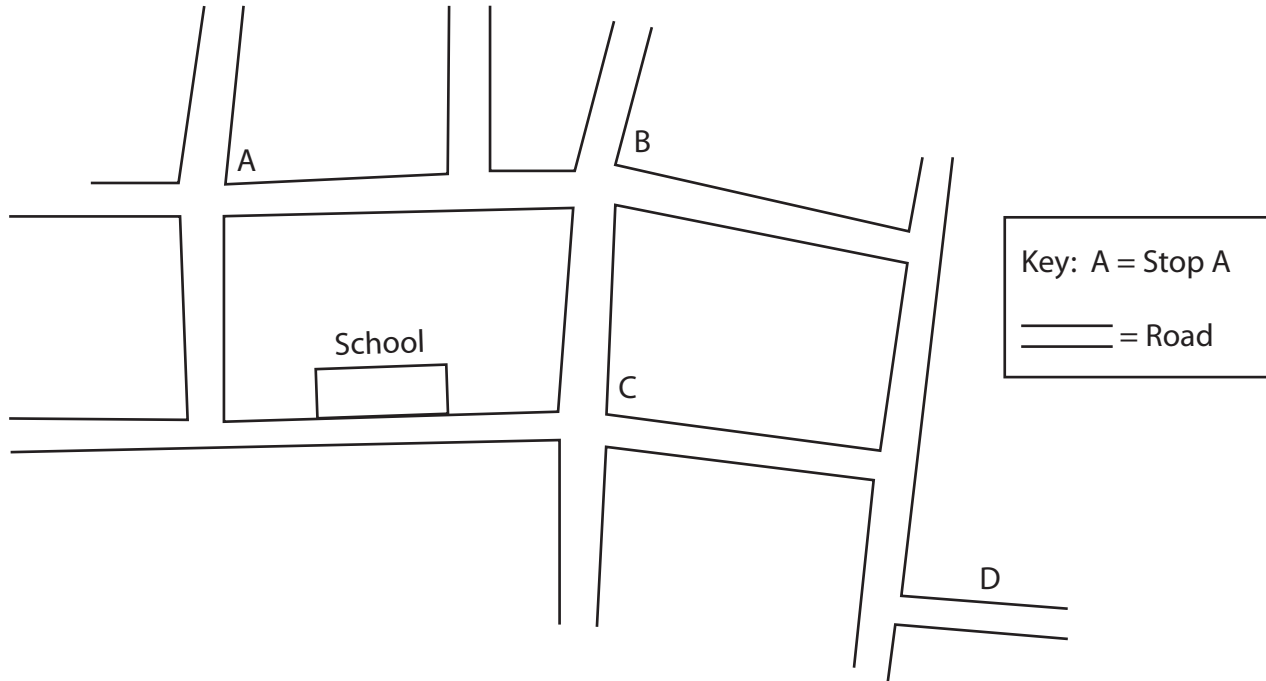
Use the box below to show your working.

(Total for Question 1 is 8 marks)



- 2 Nikki decides to start with an after school walking bus. She needs to plan the route and the timetable.

Nikki draws this map with the bus stops and the school marked on it.



Nikki walks the route herself and records the time she takes.

| Bus stops  | Walking time (minutes) |
|------------|------------------------|
| School - A | 5                      |
| A - B      | 6                      |
| B - C      | 5                      |
| C - D      | 7                      |

Nikki will allow an extra 2 minutes for the walking bus to cross each road.

The walking bus

- will leave the school at 15:25
- must get to stop D by 16:15
- will wait for 1 minute at each stop for the children to be collected.

The timetable must show the time the walking bus arrives at each stop.

- (a) Make a timetable for the walking bus. Remember to check your timetable works.

(4)

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Nikki needs to work out how many adults the walking bus needs each afternoon.  
She finds these rules for walking buses.

Minimum 2 adults

2 adults to 8 children + 1 adult for up to 8 additional children

Nikki knows 12 children will use the walking bus on Friday afternoon.

(b) How many adults are needed on the walking bus on Friday afternoon?

(1)

Write your answer in the box below.

The walking bus is a great success.

There will be a walking bus every morning and afternoon Monday to Friday.  
Nikki needs a rota for the adults who will help.

Adult 1 will lead the bus and Adult 2 will walk at the back of the bus.  
Any extra adults walk with the children.

The rota must show the

- day of the week
- morning and afternoon.

The rota needs spaces for the names of

- Adult 1
- Adult 2
- 3 extra adults.

(c) Design a rota for one week for the walking bus.

(3)

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Use the box below to show your answer.



(Total for Question 2 is 8 marks)



**SECTION B: Skateboarding**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

**3** Eric wants to buy a new skateboard.

He wants to choose the parts for his new skateboard.  
He needs a deck, wheels, bearings and trucks.

Eric finds these prices.

|                                    |        |
|------------------------------------|--------|
| deck                               | £54.99 |
| wheels                             | £25.99 |
| bearings                           | £6.95  |
| trucks                             | £31.99 |
| Special offer: 27% off deck prices |        |

If the shop puts the skateboard together the total price is £134.95  
Eric thinks he can save more than £25 if he puts the skateboard together himself.

(a) Can Eric save more than £25?

(4)

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



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Eric also needs to buy a new helmet.  
He thinks the cost might be cheaper from the USA.

Eric knows the cost of the helmet from the USA is \$49.95  
The cheapest cost for the helmet in England is £39.95

To compare the costs Eric uses  $\$1 = \pounds 0.60$

(b) Where should Eric get the helmet?  
Justify your answer.  
Show a check of your working.

(4)

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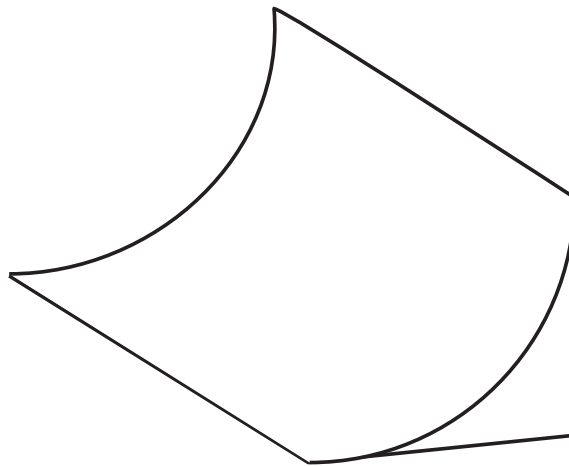


(Total for Question 3 is 8 marks)



4 Eric plans to build a quarter pipe for skateboarding.

He draws this sketch of the quarter pipe.



Eric wants to use sheets of plywood to make the curve of the quarter pipe. He can buy the plywood in lengths of 2440 mm.

Eric has instructions to make the quarter pipe.

The instructions show that  $L$ , the length of the curve in feet, is found using this rule.

$$L = \frac{1}{4} \pi d \text{ where } \pi = 3.14$$

Eric wants to make  $d$  equal to 16 feet.

He knows  $100 \text{ mm} = 0.33 \text{ feet}$ .

Is one length of plywood enough for the length of the curve of the quarter pipe?

(5)

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



(Total for Question 4 is 5 marks)

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5 Eric also builds a flat ramp in his garden.

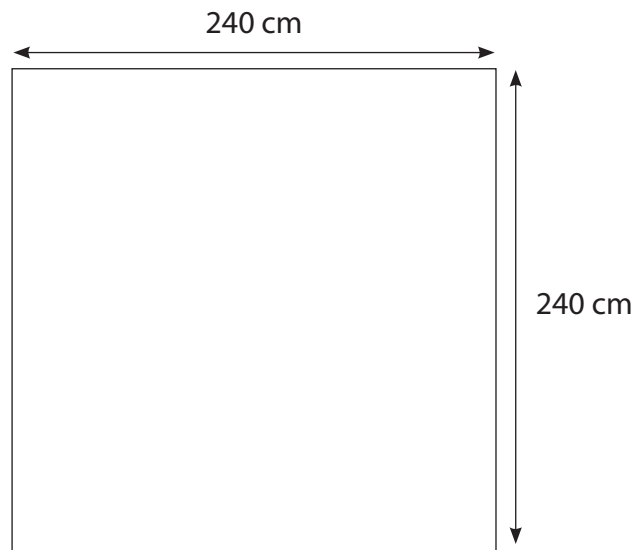
The surface of the ramp will be a square built from sheets of plywood.

The plywood is attached to a frame using screws.



Eric needs one screw in each corner and one screw every 30 cm along each edge of the ramp surface.

The ramp surface is 240 cm by 240 cm.



How many screws does Eric need for the ramp surface?

(3)

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



(Total for Question 5 is 3 marks)

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**SECTION C: New office**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 6** Mia is setting up a new office for her business.  
She wants to buy a special computer that costs £2400

Mia needs a loan to buy the computer.  
The bank tells her

- we will give you a loan of £2000
- you must pay £96 each month
- you will pay back the loan and the interest in 2 years.

Mia thinks the total amount of interest is 15% of the loan.

(a) Is Mia correct?  
Show why you think this.

(3)

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

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Mia needs a new contract for her office smartphone.

She thinks she will use an average of 500 MB of data each month.

Mia checks how much data she has used.

|                | Mar | Apr | May | Jun | Jul | Aug |
|----------------|-----|-----|-----|-----|-----|-----|
| Data used (MB) | 648 | 593 | 499 | 603 | 482 | ?   |

Mia will get a 1 GB contract if the mean average is more than 500 MB of data over the 6 months.

- (b) How much data must Mia use in August for the mean average to be 500 MB?  
You must show a check on your working. (4)

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

Use the box below to show a check of your working.



Mia wants to buy a tablet computer.  
She finds these details.

| Make   | Price   | Screen size | Processor speed | RAM    |
|--------|---------|-------------|-----------------|--------|
| Samson | £179.52 | 13.3"       | 1.6 GHz         | 1 GB   |
| Pear   | £113    | 10.1"       | 1.3 GHz         | 1 GB   |
| Aura   | £229.98 | 10.1"       | 1.58 GHz        | 2 GB   |
| SP     | £188    | 10.1"       | 1.6 GHz         | 2 GB   |
| Nero   | £305    | 10"         | 1.2 GHz         | 1.5 GB |

Mia wants a screen bigger than 10", a processor speed of 1.6 GHz or more and a minimum of 1.5 GB of RAM.

(c) Which tablet computer should Mia choose?

(1)

Write your answer in the box below.

(Total for Question 6 is 8 marks)

- 7 Mia delivers training as part of her business.  
She wants to make up 30 training packs for next week.

Each pack needs

- 1 front and 1 back cover
- 7 dividers
- 53 paper pages.

Mia uses card for the front and back covers.

She has these supplies

- 100 sheets of card
- 200 dividers
- 6 packs of 250 sheets of paper.

Mia thinks she needs 15 more dividers and 100 more sheets of paper.

(a) Is Mia correct?  
Show why you think this.

(4)





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



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Mia takes biscuits to the training.  
She keeps packets of biscuits in a box in her office.

Mia has these packets of biscuits

5 ginger, 8 chocolate, 4 cream, 7 cookies.

She takes one packet of biscuits out of the box without looking.

(b) What is the probability that she takes a packet of chocolate biscuits?

(2)

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

Mia asks the people who attend her training to complete a feedback form each day.  
She puts the results onto graphs.

Mia wants to compare the results from Day 1 with the results from Day 2.

(c) Compare the results from Day 1 with the results from Day 2.

(2)

Write your answer in the box below.

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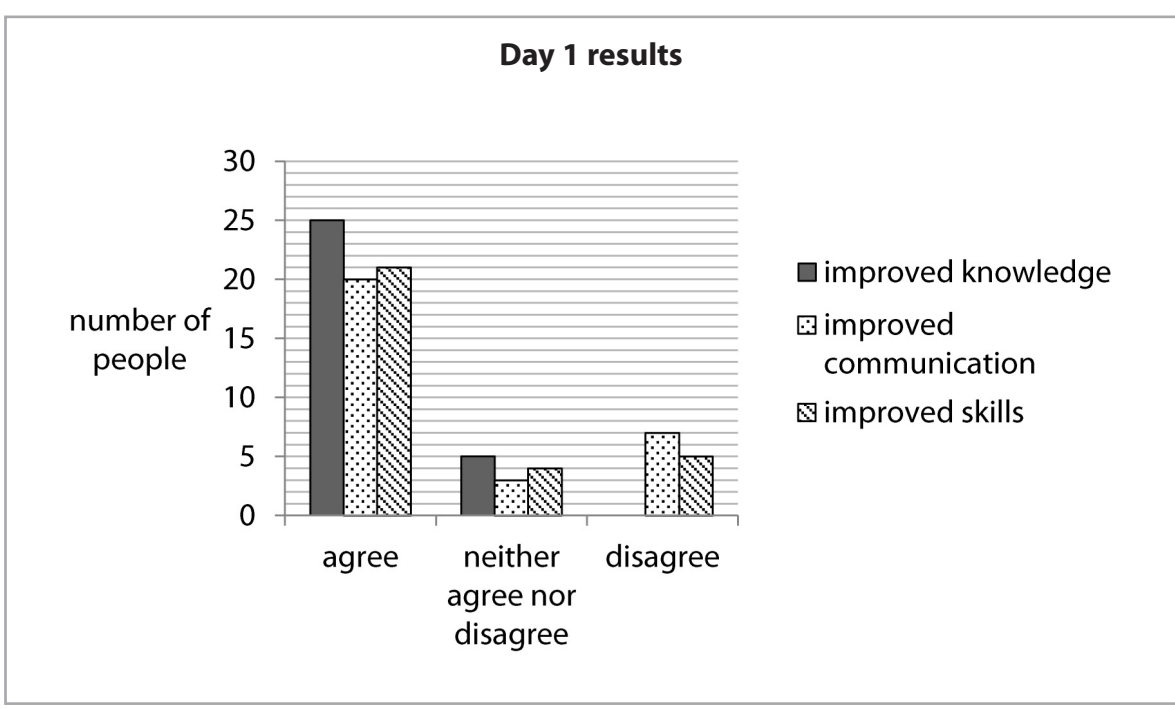
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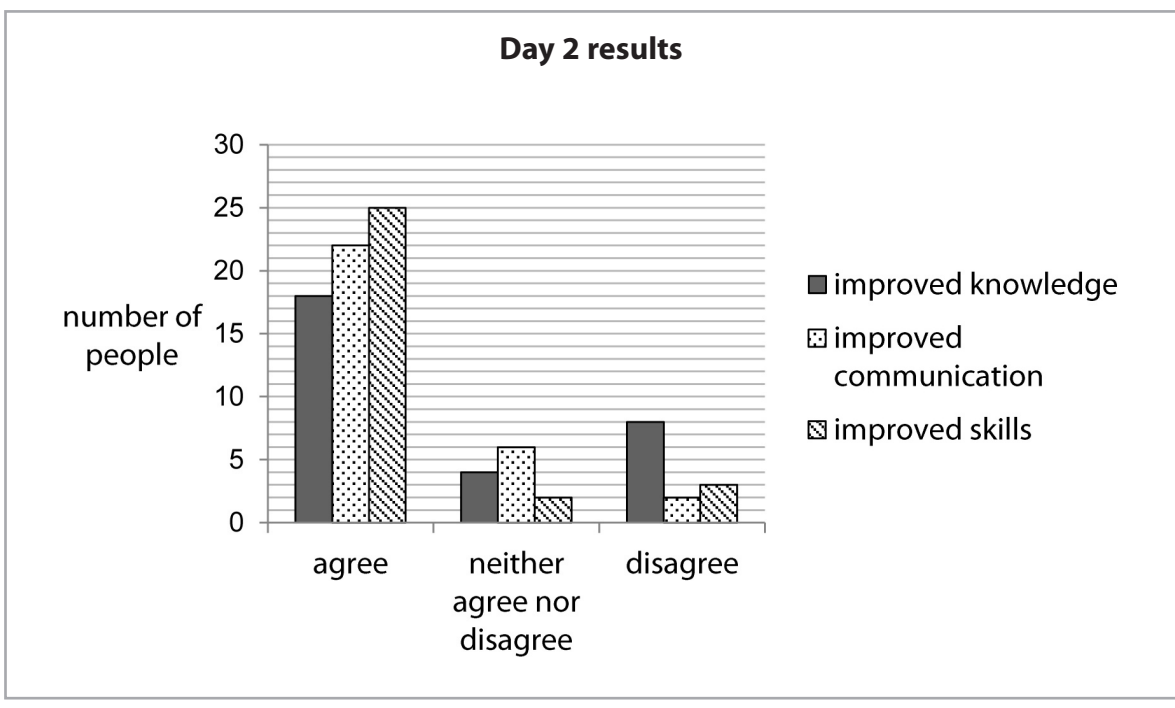
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### Day 1 results



### Day 2 results



(Total for Question 7 is 8 marks)

**TOTAL FOR PAPER IS 48 MARKS**





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