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Total Marks

[MATH(I1)07P2]

NATIONAL
QUALIFICATIONS

Time: 55 minutes

MATHEMATICS
INTERMEDIATE 1

Question Paper 2 (Units 1, 2, 3)

Fill in these boxes and read what is printed below.

Full name of school or college

Town

First name and initials

Surname

Date of birth

Day Month Year

| | | | | | |
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|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|

- 1 Answer as many questions as you can.
- 2 Write your working and answers in the spaces provided. Additional space is provided at the end of this question-answer book for use if required. If you use this space, write clearly the number of the question involved.
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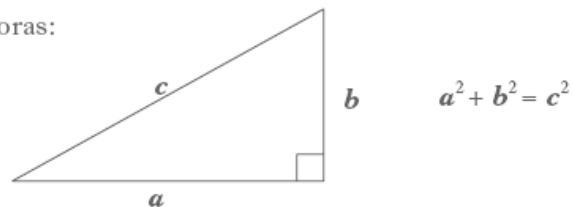
This test paper must be withdrawn from candidates after the examination and any follow-up discussion of marks/grades awarded. This is to ensure the 'sight unseen' status of this paper is maintained for your centre and other schools/colleges during the diet of prelim examinations in 2006/2007. Submission of this test paper for Appeals purposes will assume that these conditions have been applied.

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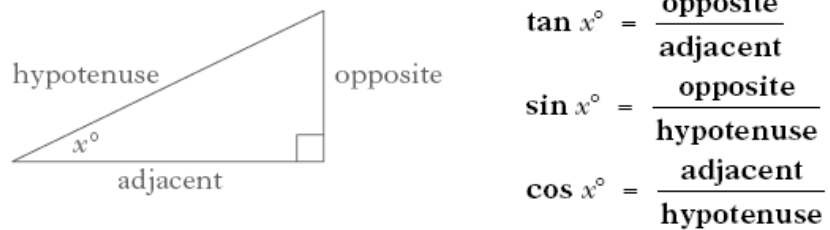
FORMULAE LIST

Circumference of a circle: $C = \pi d$
Area of a circle: $A = \pi r^2$
Curved surface area of a cylinder: $A = 2\pi rh$

Theorem of Pythagoras:



Trigonometric ratios
in a right angled
triangle:

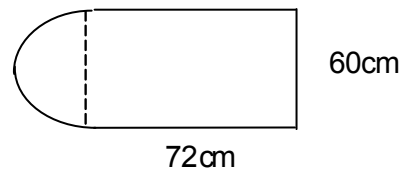


1. Solve the inequality

$$3t - 2 < 19$$

2

2. A rug is made up of a rectangular piece of material with a semi-circle attached to one end as the diagram shows. Calculate the total area of the rug.



4

3. The table gives the heights of 10 sunflowers:-

| | | | | |
|-------|-------|-------|-------|-------|
| 1.89m | 1.45m | 1.36m | 1.94m | 2.05m |
| 2.11m | 1.62m | 1.98m | 2.01m | 1.51m |

(a) Find the mean and range of this data.

4

(b) In another group of 10 sunflowers the mean was 1.71m and the range was 0.6m. Use this information to compare the two groups.

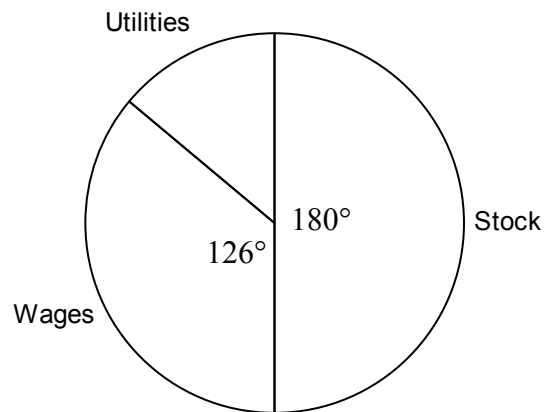
2

[Turn over

4. Luca's pay was increased from £21 500 to £25 000.
Calculate the percentage increase.
Round your answer to 1 decimal place.

4

5. The pie chart shows how a small business spent £ 120 000 in 1 year on stock, wages and utilities.
Calculate the amount of money spent on utilities.

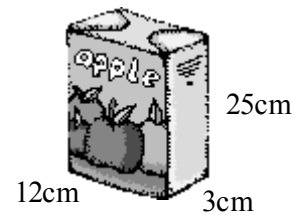


3

6. A taxi journey of 18 miles cost £ 40.32.
Given the same rate is charged, find the cost of a 40 mile journey.

2

7. This carton has been designed to hold 1 litre of apple juice. Calculate the volume of the carton and state whether or not it is suitable.



8. Mel and Sanjay are going on holiday to the USA. They change £450 into dollars. The exchange rate is £1 = \$1.85.

(a) How much do they have in dollars?

(b) On their holiday they spend \$750. On their return they exchange the dollars back into pounds. They pay £8.25 commission, how much will they now have in pounds?

Marks

3

2

4

[Turn over

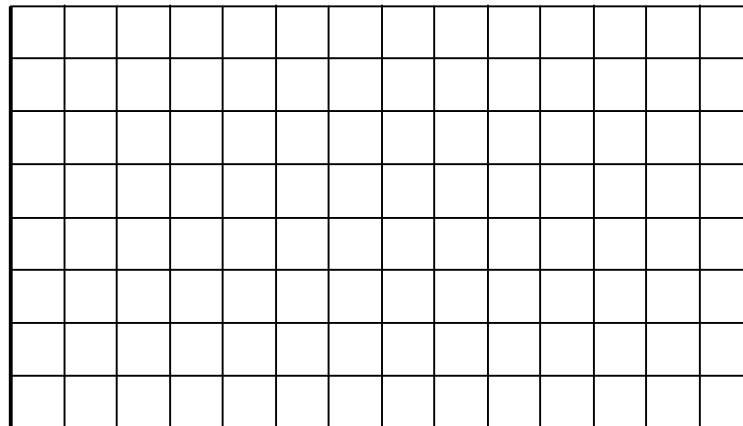
9. Julie was frequently late for school.
 Over a 2 week period her teacher kept a note on how many minutes late she was each day.
 Here are the results:-
 0, 1, 3, 0, 2, 5, 1, 3, 1, 2.

(a) Put this information into the frequency table.

| Minutes late | Frequency |
|--------------|-----------|
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

2

(b) Complete a bar graph on the grid given.



3

10. The area of a circle is 631.65cm^2 .
 Use the formula $r = \sqrt{\frac{A}{\pi}}$ to find the radius.

3

11.

Multiply out the brackets and simplify the following

$$10 + 2(3x - 6) + 9x$$

3

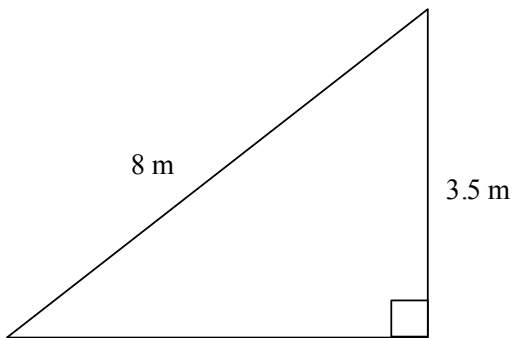
12.

In one season football attendances totalled 2 345 000.
The average admission price was £18.

Calculate the total takings for the year, giving your answer in standard form.

3

13.



To be safety approved the angle of elevation of this 'Mega Slide' must be less than 30.

Is this slide safe?
Give a reason for your answer.

4

[END OF QUESTION PAPER]

Additional space for answers

Marks

| |
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1.

| | A | B | C | D |
|---|--------------|-----|-----|-----|
| 1 | Candidate | 001 | 002 | 003 |
| 2 | Paper 1 (20) | 15 | 10 | 19 |
| 3 | Paper 2 (30) | 23 | 12 | 27 |
| 4 | Total | 38 | | |
| 5 | Average | 19 | | |

(a) Write down the formula used to calculate the value in cell B4.

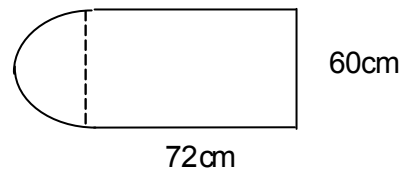
1

(b) Cell B5 uses the formula =AVG(B2:B3).
Use this formula to calculate the values for cells C5 and D5.

2

2.

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Calculate the total area of the rug.



4

3.

The table gives the heights of 10 sunflowers:-

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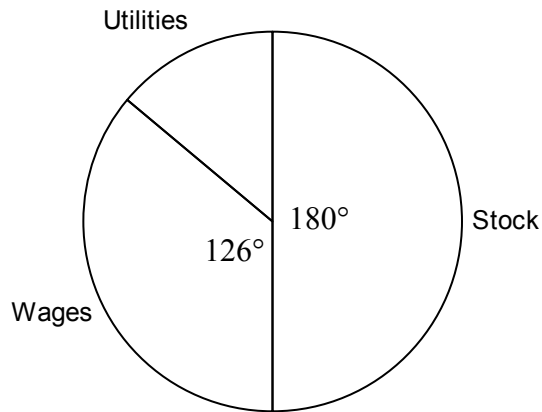
2

[Turn over

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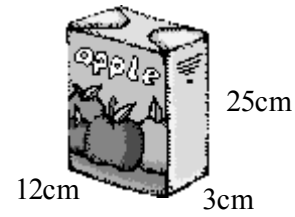


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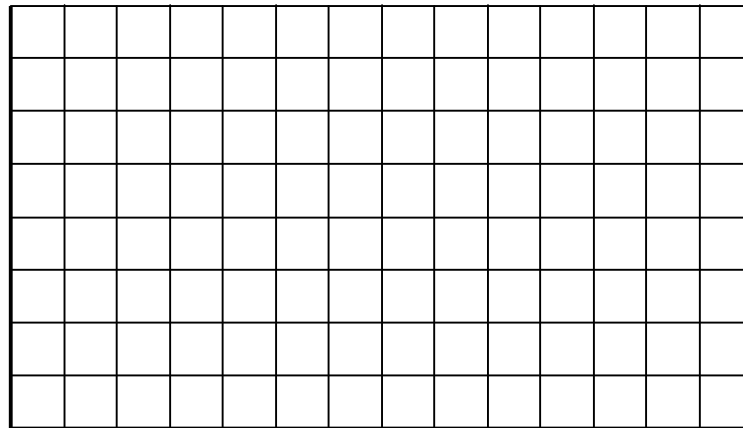
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| 1 | |
| 2 | |
| 3 | |
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2

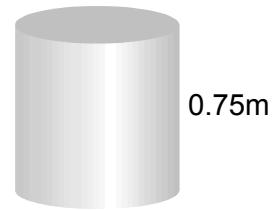
(b) Complete a bar graph on the grid given.



3

[Turn over

- 10.** A cylindrical shaped seat with a diameter of 52cm is going to be covered with plastic.
The plastic must fit the cylinder exactly.



- (a) Draw the net of the cylinder.
- (b) Calculate the total area of plastic required.

Marks

2

4

11. The table below shows the repayments required per month depending on the amount borrowed.

LOAN SHARKS LTD.

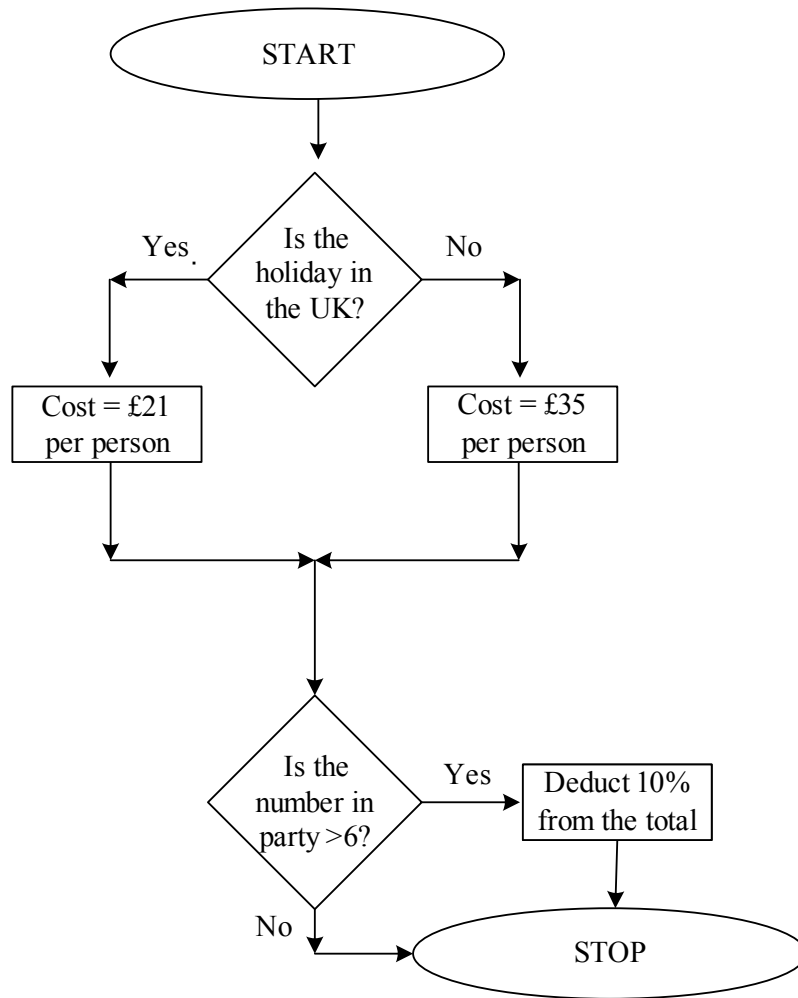
| Repayment period | 12 months | | 24 months | | 36 months | |
|------------------|------------|---------|------------|---------|------------|---------|
| | Without LP | With LP | Without LP | With LP | Without LP | With LP |
| £1000 | 88 | 95 | 44 | 52 | 30 | 38 |
| £5000 | 438 | 450 | 219 | 234 | 146 | 158 |
| £10000 | 875 | 895 | 437 | 457 | 291 | 311 |

LP = Loan Protection

- (a) What is the monthly repayment for a loan of £5000 to be repaid over 24 months with loan protection? **1**
- (b) How much does it cost to borrow £10 000 over 36 months without loan protection? **3**

[Turn over

12. The flowchart below shows how to find the cost of travel insurance for a 10 day holiday.



Use the flowchart to find the total insurance cost for a party of seven planning a 10 day holiday in the UK.

3

[END OF QUESTION PAPER]

Additional space for answers

Marks

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| |
|--|