Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Applied 2004

Mathematical Applications
(200 marks)

Friday, 11th June

Morning 9.30 – 11.30

General Directions

1. Write your EXAMINATION NUMBER in this space:

2. Write all answers in the boxes or spaces in this answerbook.

3. Show necessary work on right hand blank page opposite each question.

4. Calculators may be used.

5. Answers involving money should be given correct to the nearest cent, unless otherwise indicated.

ATTEMPT QUESTION ONE AND THREE OTHER QUESTIONS.
ALL QUESTIONS CARRY EQUAL MARKS.

For the Superintendent only	*For the Examiner only*		
Centre Stamp	1.	Cumulative end-of-page total.	
	2.	Aggregate total of all disallowed questions.	
	3.	Total mark awarded (1 minus 2)	
	4.	Bonus mark for answering through Irish (if applicable)	
	5.	Total mark awarded if Irish Bonus. (3 + 4)	
	Note:	The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal the mark in the *Grand Total* box on the inside flap.	

1. *(a)* Find 48 % of €643.45.

(b) There are 30 students in a class.
12 of these are girls.
What percentage of the class are girls?

(c) An aeroplane flies 3690 km in 4.5 hours.
Calculate the average speed of the aeroplane.
Use the formula $S = \dfrac{D}{T}$.

(d) The length of a side of a square is 5.2 m.
Calculate the area of the square.

(e) Calculate $(25.36)^2$, correct to two decimal places.

(f) A journey begins at 11:15 pm and ends at 0:52 am.
How long does the journey take?

(g) A school basketball team played 7 matches.
Their scores were

71, 57, 26, 48, 68, 42 and 60.

What was the median score?

(h) Given an exchange rate of €1 = $1.15,
convert €550 to dollars.

(i) A bill amounts to €195, excluding VAT.
VAT is added to the bill at the rate of 21%.
Calculate the bill including VAT.

(j) Calculate the cost of 8 litres of milk at €0.78 per litre.

You may use this page to show any necessary work for Question 1

2. Research Element Question on PAYE.

Here is Mr John Murphy's payslip for week 2 of the tax year:

P.P.S. No.	Work No.	Name	Week Number
1234567Y	WN 314	John Murphy	2

Gross Pay		Deductions	
Basic Pay	378.00	Tax	
		P.R.S.I.	14.22
Overtime	97.45	Others	12.45
		Total Deductions	
Total Gross Pay	475.45	Nett Pay	

YEAR TO DATE TOTALS				
Gross Pay	Tax Credit	Cut-Off Point	Tax	P.R.S.I.
965.05			96.17	29.00

Here is his Tax Deduction Card:

Employee's Name				Date of issue		PPS Number		Works No.	Total Tax Credit	Total Cut-Off
Mr John Murphy				05/01/04		1234567Y		WN 314	2518	28200
B	G	H	I	J	K	L	M	N	O
Week Number	Gross Pay (less Superanuation) This period	Cumulative Gross Pay To Date	Cumulative Standard Rate cut- Off Point	Cumulative Tax due at Standard Rate 20%	Cumulative Tax due at Higher Rate 42%	Cumulative Gross Tax	Cumulative Tax Credit	Cumulative Tax	Tax Deducted This Period
1	489.60	489.60	542.31	97.92		97.92	48.42	49.50	49.50
2	475.45	965.05	1084.62	193.01		193.01	96.84	96.17	46.67
3	486.30		1626.93				145.26		

(a) Fill in the five missing details on the payslip, using the information for **week number 2** from the tax-deduction card.

(b) Fill in the five missing details for **week number 3** on the Tax Deduction Card.

3. *(a)* Construct a triangle in which

  - one side is 3 cm
  - another side is 4 cm
  - the angle between these two
    sides is 90°.
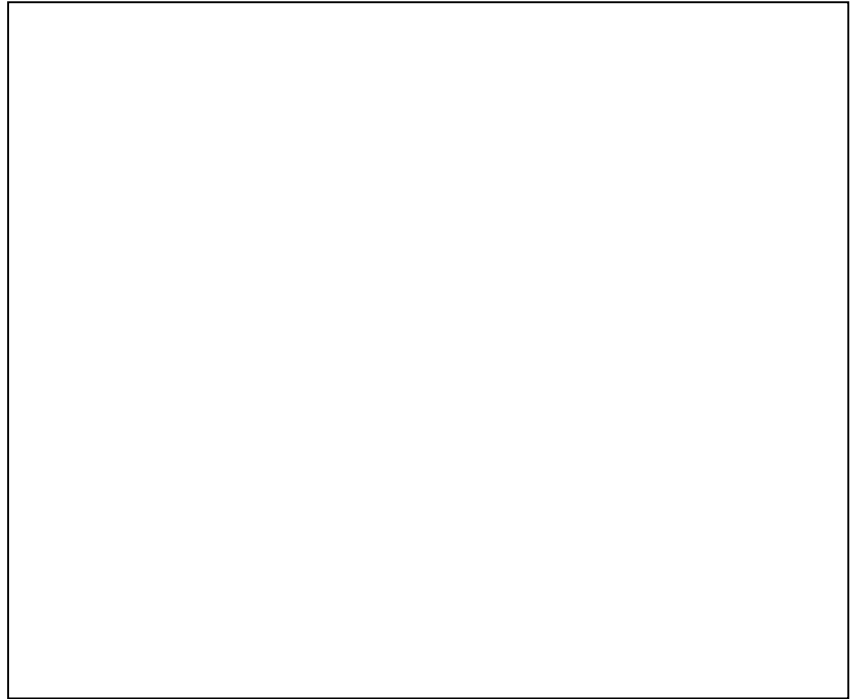
(b) Write down the length of the third side.

(c) Find the area of the triangle using

$$\text{Area} = \frac{1}{2}(\text{base} \times \text{height})$$

(d) David has fourteen socks in a box. Eight are black and the rest are white.
David picks out a sock at random.
Find the probability that the sock is white.

(e) A coin is tossed.
Write down the probability of getting a *tail*.

(f) The coin is tossed 400 times.
How many times would you expect to get a *tail*?

4. A hall door is in the shape of a rectangle with a semi-circle on top, as shown in the diagram.

1.75 m

← 0.9 m →
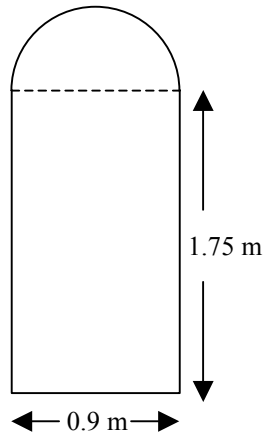
(a) The rectangular section measures 0.9 m × 1.75 m. Calculate the area of the rectangular section.

(b) The diameter of the semi-circle measures 0.9 m. Calculate the area of the semi-circular section, taking $\pi = 3.14$.

$$\text{Area} = \frac{1}{2} (\pi \, r^2)$$

(c) Calculate the total area of the front of the door, correct to one decimal place.

(d) A painter has to paint the front of 80 such doors. Calculate the total area to be painted.

(e) Each door needs three coats of paint. Each tin of paint covers 14 m^2 with one coat. How many tins of paint must be bought to paint the doors?

5.

<table>
<tr><td colspan="8">*Every Occasion Florist*   **Time Card**</td></tr>
</table>

| Every Occasion Florist | | | | | | Time Card |

Name: Anne Murphy   **Department:** Dispatch   **Work Number**: N321   **Week No:** 19

	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Start	10:30	11:30	14:00	08:50	08:45	09:00	09:35
Finish	17:30	13:00	20:40	18:10	18:30	18:55	16:55
Lunch Break	1hr	–	–	1hr	1hr	1hr	1hr
Daily Hrs							

SUMMARY

Total Sat/Sun Hours		Total weekday hours	

Weekday standard	37	hrs	Weekday overtime		hrs

(a) Calculate the <u>daily hours</u> worked by Anne Murphy each day and write your answers on her Time Card.

(b) Anne's standard week is 37 hours.
Complete the **SUMMARY** section of the Time Card to show the number of weekend hours, standard hours and overtime hours Anne worked.

(c) Anne is paid €7.40 per hour for standard working hours.
She is paid time and a half for weekday overtime.
She is paid double time for Saturday and Sunday work.
Fill in the table below to calculate her gross earnings for the week.

Standard Week 37 hrs @ €7.40	= €
Sat/Sun [ ] hrs @ € [ ]	= €
Overtime [ ] hrs @ € [ ]	= €
Gross earnings	= €

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