



**SET Z**

**Level 3 Certificate**  
**MATHEMATICAL STUDIES**

**Paper 1**

**Preliminary material**

**Instructions**

- This preliminary material will be given to you before your exam.
- You must not take annotated preliminary materials into the exam.  
You will be given a clean copy by your teacher.

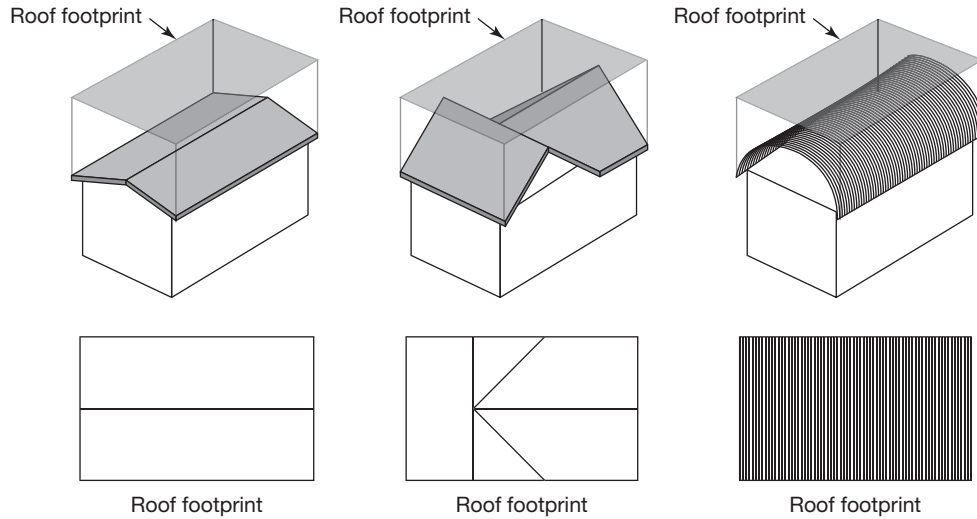
# Preliminary material Paper 1

## Collecting rainwater

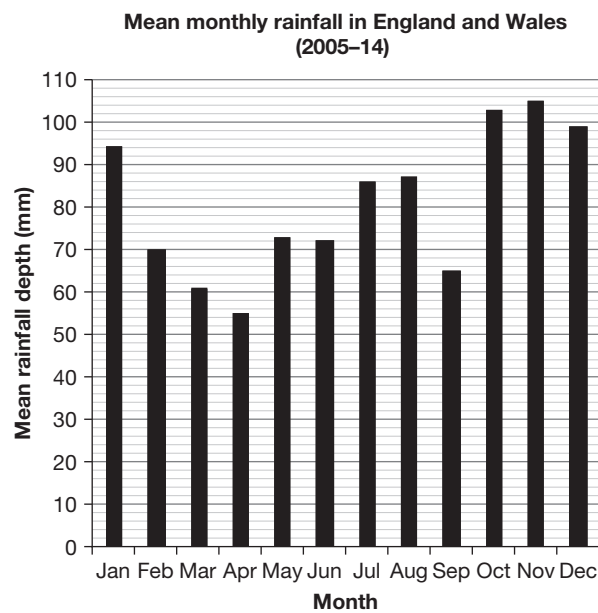
Some householders collect rainwater.

The volume of rainwater collected can be estimated from:

$$\text{volume of rainwater} = \text{area of roof footprint} \times \text{depth of rainfall} \times \text{efficiency (about 0.8)}$$



The chart shows the mean monthly rainfall in England and Wales for 2005–14.



## Taxation 2015-16

### National Insurance 2015-16

Percentage National Insurance Due	Minimum Weekly Income	Maximum Weekly Income	Minimum Monthly Income	Maximum Monthly Income
<b>Non-contracted out</b>				
Nil		Below £112		Below £486
0%	£112	£155	£486	£672
12%	£155.01	£815	£672.01	£3532
2%	above £815		above £3532	
<b>Contracted out</b>				
10.6%	£155.01	£770	£672.01	£3337

Note: A person is ‘**contracted out**’ if they are a member of a contracted out occupational pension scheme or personal/stakeholder pension. They pay a slightly lower rate of National Insurance as the state does not have to pay them as much pension.

A person with a weekly income of, say, £320 a week will pay 12% on the amount above £155.

A person with a weekly income of, say, £940 a week will pay 12% on the amount between £155.01 and £815 plus 2% of the amount above £815.

### Income tax 2015-16

Most people have a personal allowance. This is an annual amount of tax-free income. The personal allowance for 2015-16 was £10 600. The rates of income tax you pay depend on how much taxable income you have above your personal allowance.

### Income tax rates and taxable bands 2015-16

Rate	Taxable Income
Basic: 20%	£0-£31 785
Higher: 40%	£31 786-£150 000
Additional: 45%	Over £150 000

### To calculate your income tax if your annual income is £100 000 or less

Find your taxable income by subtracting your personal tax allowance from your annual income.

You pay income tax at 20% on the first £31 785 of your taxable income.

You pay income tax at 40% on your taxable income over £31 785.

### Student loans

Student loans are paid back at a rate of 9% of gross earnings in excess of £21 000 per year.

Interest is added to the loan from the time when earnings start.

### Net pay

Your net pay or take home pay is the money you earn after any deductions for income tax, National Insurance and student loan repayments.