

St Ninian's High School



N5 Lifeskills Logbook

TJ Book

- I understand this part of the course = 👍
- I am unsure of this part of the course = 🙋
- I do not understand this part of the course = 🙏

Name _____ Class _____ Teacher _____

Geometry & Measure

Pupil Signature _____

Parental Signature _____

Topic 1 - Tolerance (Chapter 11)



1. Tolerance Involving Percentages

5% of 140
= 7

Stuart wants to get fit so he decides to do 140 sit-ups $\pm 5\%$ every day for 6 months.

What range of values are acceptable to on track ?

Minimum = $140 - 7 = 133$

Maximum = $140 + 7 = 147$

Range between 133 and 147

Notation format (140 ± 7) sit-ups

2. Effect of Tolerance

Depends!

Linda measures something and is 2cm out.

Is this acceptable ?

Length of her garden

Probability ok in relation to overall length.

Width of window frame

Probability NOT the new window will not fit !!!

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Topic 2 - Rules & Formulae (Chapter 12)



1. Formulae expressed in Words

Multiply the temperature in °C by 1.8 then add 32

2. Evaluating Formulae with Symbols

$V = \pi r^2 h$ $F = ma$ $y = 2x + 1$ etc.....

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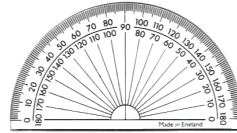
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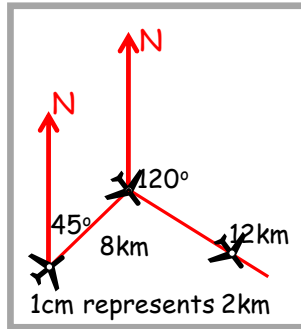
Topic 3 -Scale Drawings (Chapter 13)



1. Scale Drawing using a protractor



2. Bearings and Scale Drawings



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Topic 4 - Time / Distance / Speed (Chapter 14)



1. Converting Hours and Minutes to Decimal Time

Example 1 : 2 hrs 18 mins $2 + (18 \div 60) = 2.3$ hrs

2. Converting Decimal Time to Hours and Minutes

Example 2 : 3.4 hrs to hours and minutes is
 $3 + (0.4 \times 60) = 3$ hrs 24 mins

3. Mixed Time / Distance / Speed Calculations

$$T = \frac{D}{S} \quad S = \frac{D}{T} \quad D = ST$$



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Topic 5 - Problems Involving Pythagoras (Chapter 15)

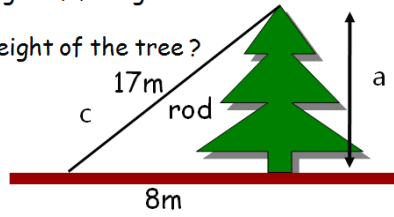


1. Real - Life Problems

Involving Pythagoras Theorem

A steel rod is used to support a tree which is in danger of falling down.

What is the height of the tree?



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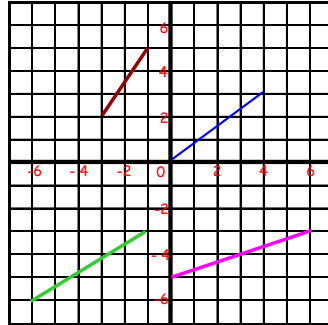
Topic 6 - Gradients (Chapter 16)

1. Using Gradient

Involving Pythagoras Theorem

The Gradient is the measure of how steep a slope is.

$$m = \frac{\text{Vertical Height}}{\text{Horizontal Distance}}$$



Gradient & Pythagoras Theorem

Calculate the gradient of the triangle.

First we need to find the horizontal distance.

$$a^2 = c^2 - b^2$$

$$a^2 = 15^2 - 12^2$$

$$a^2 = 81$$

$$a = \sqrt{81}$$

$$a = 9 \text{ cm}$$

$$m = \frac{V}{H}$$

$$= \frac{12}{9}$$

$$= 1.33$$

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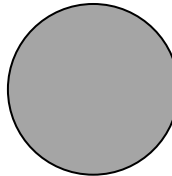
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Topic 7 - Area of a Circle (Chapter 17)



1. Area of a Circle

$$A = \pi r^2$$



2. Mixed Problems.

Including

Fractional

Composite Area

Big - Small Area

Working backwards



$$A = \frac{1}{2} \pi r^2$$



$$A = \frac{1}{4} \pi r^2$$

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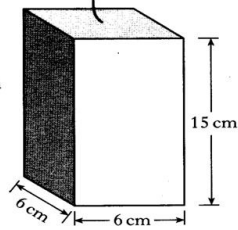
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Topic 8 - Problem Solving (Chapter 18)

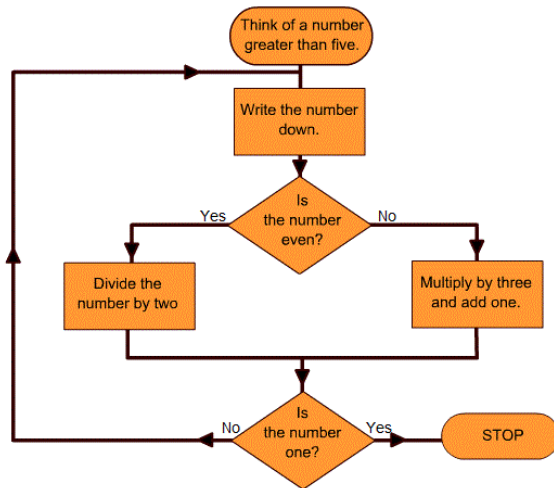


1. Problem Solving using Volume

Alison buys her wax in 10 litre tubs.
How many candles can she make from a tub of wax?



2. Problem Solving Questions



2. Problem Solving involving Time Management

How long to complete a job ?



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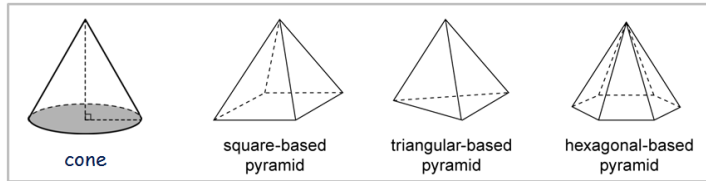
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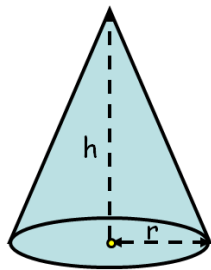
Topic 9 - Volume (Chapter 19)



1. Volume of a Pyramid and Cone



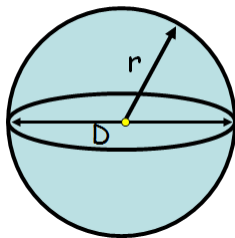
$$V = \frac{1}{3}Ah$$



r = radius
h = Perpendicular height

$$\text{Volume Cone} = \frac{1}{3}\pi r^2 h$$

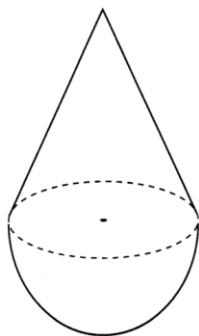
2. Liquid Volume



D = diameter r = radius = $\frac{1}{2}D$

$$\text{Volume} = \frac{4}{3}\pi r^3$$

3. Volume of Composite Shape



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For my Geometry & Measure Assessment I will
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Pupils must achieve a minimum of 60%

Geometry & Measure Assessment	Pass	Failed
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Finance & Statistics

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Topic 13 - Income (Chapter 20)



1. Wages & Salaries

Annual means per year

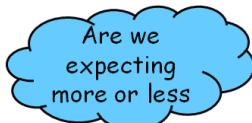
Weekly = (Annual ÷ 52)

Monthly = (Annual ÷ 12)

2. Wage Slips - Deductions - gross / net pay

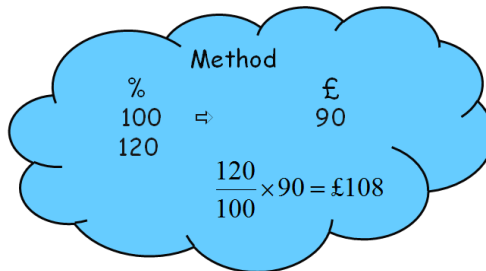
Name : Joe Bloggs								
Income	Basic	£603.65	O/T	£85.50	Bonus	£50.00	Total	739.15
Deductions	Tax	£142.75	Nat Ins.	£30.72	Pension	£34.29	Total	207.76
							NET PAY	531.39

3. Income Tax (VAT = 20%) and Allowances



The Adams family paid £90 for a family meal before tax.

What was the actual cost of the meal.



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Topic 14 - Money Matters (Chapter 21)



1. VAT (20%)

Are we expecting more or less

The Adams family paid £90 for a family meal before tax.

What was the actual cost of the meal.

%	Method	£
100	=	90
120		$\frac{120}{100} \times 90 = \text{£}108$

2. Hire Purchase

Deposit
10% of £120
 $120 \div 10$
= £12



Buying Products

- Hoover Cash Price £120
- or
- by H.P. 10% deposit + 12 Payment £11

How much more do you pay by using Hire Purchase

Total H.P. price = £12 + 12 × £11 = £144

Difference in price = £144 - £120 = £24

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3. Insurance

Items	Charge
Building per £1000	£0.73
Contents per £1000	£3.57
Valuables per £100	£4.75

* Building & Contents 10% discount for each year no claims
 ** Maximum discount 30%

4. Profit & Loss

Profit : When you sell something for MORE than you bought it.

$$\text{PROFIT} = \text{Selling Price} - \text{Buying Price}$$

Loss : When you sell something for LESS than you bought it.

$$\text{LOSS} = \text{Buying Price} - \text{Selling Price}$$

5. Foreign Exchange

Are we expecting more or less

Example : How many Dollars will I get for £50.

Exchange rate £1 =	
Euro €	1.44
Dollar \$	1.51
Yen	190

Proportion method
 £ 1 ⇔ \$ 1.51
 (more) 50 $\frac{50}{1} \times 1.51 = \75.50

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6. Simple Interest

Bank of Lafferty	
< £10000	4.35%
Between £10000 - £20000	5.30%
> £20000	7.25%

Leah has saved £12,500.
She decides to put it in the Bank of Lafferty.

How much interest will she receive after 1 year ?
How much does she have now ?

Interest : $\frac{5.3}{100} \times 12500 = \text{£ } 662.50$

Total in Bank now : $\text{£}12500 + \text{£}662.50 = \text{£}13162.50$

7. Compound Interest

Easier Method

$$V = I \left(1 \pm \frac{\%}{100} \right)^n$$

This is called the multiplier.

n = period of time
Days, months years

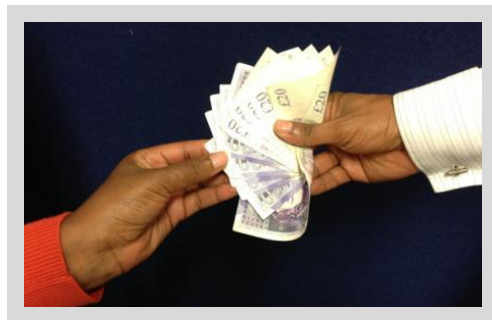
I = initial value

± = increase or decrease

V = Value

IMPORTANT
Can only use this when percentage is fixed

8. Borrowing Money



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Topic 15 - Best Deals (Chapter 22)



1. Managing Your Money

Are we expecting more or less

Ex: What is the best deal for Petrol.

Deal 2 - Proportion method

	L	£
60	⇒	65.40
(less) 1		

$$\frac{1}{60} \times 65.40 = \text{£}1.09$$

Deal 1	Deal 2
60 litres	38 litres
£65.40	£40.66

Are we expecting more or less

Ex: What is the best deal for Petrol.

Deal 2 - Proportion method

	L	£
38	⇒	40.66
(less) 1		

$$\frac{1}{38} \times 40.66 = \text{£}1.07$$

Deal 1	Deal 2
60 litres	38 litres
£65.40	£40.66

Deal 2 is Best by 2p per litre

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Topic 16 - Budgets (Chapter 23)



1. Budgeting

Kayleigh saves £20 a week so she can buy a new bicycle costing £450.

(a) Can she afford it after 22 weeks?

No!

$$\text{Savings total} = 19 \times 20 = \text{£} 380$$

(b) For how many more week does she need to save.

$$450 - 380 = \text{£}70$$

$70 \div 20 = 3.5$
Another 4 weeks

2. Monthly Budget

Monthly Budget	
Income	Expenditure
Wages	Food
Child Benefit	Gas & Electric
Child Tax Credit	Rent
Working Tax Credit	TV Internet
	Mobile Phone
	Car Loan & Petrol
	Insurance
	Credit Card
	Clothes

3. Savings Account

David has £400 in the Bank.
If he receives 7.2% p.a. interest

How much interest does he receive after 1 year?
How much does he have now in the bank?

$$\text{Interest} : \frac{7.2}{100} \times 400 = \text{£} 28.80$$

$$\text{Total in Bank now} : \text{£}400 + \text{£}28.80 = \text{£}428.80$$

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4. Credit Borrowing

Alistair takes out a loan for £5000 for a car.
Calculate the total paid back for each option.

	APR %	Loan Term
Loan payment Option 1	9.8	12 months
Loan payment Option 2	8.4	6 months

Option 1 : $\frac{9.8}{100} \times 5000 = \text{£ } 490$

Pay back total : $\text{£}5000 + \text{£}490 = \text{£}5490$

Monthly payment : $\text{£}5490 \div 12 = \text{£}457.50$

Option 2 : $\frac{4.2}{100} \times 5000 = \text{£ } 210$ 8.4 ÷ 2 = 4.2

Pay back total : $\text{£}5000 + \text{£}210 = \text{£}5210$

Monthly payment : $\text{£}5210 \div 6 = \text{£}868.33$

Why might someone pick option 2 ?

Monthly payment Option 1 : $\text{£}457.50$

Monthly payment Option 2 : $\text{£}868.33$

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Topic 17 - Statistics (Chapter 24)



1. Mean Median Mode and Range

Mean = (Add up all the data) ÷ the number bits of data

Range = Highest - lowest

Median = Middle number when data arranged in order

Mode = The number that occurs the most

2. Quartiles

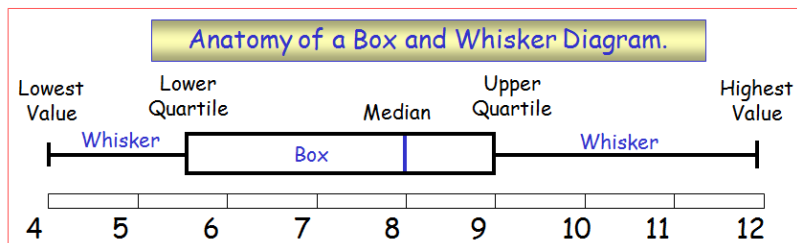
Example 1: For a list of 9 numbers find the SIQR
 3, 3, 7, 8, 10, 9, 1, 5, 9 $9 \div 4 = 2$ R1

1	3	3	5	7	8	9	9	10
2 numbers		2 numbers		1 No.	2 numbers		2 numbers	
Q1		Q2		Q3				

3. Semi-Interquartile Range (SIQR)

Semi-interquartile Range
 $(SIQR) = (Q_3 - Q_1) \div 2$
 $= (9 - 3) \div 2$
 $= 3$

4. Boxplot - 5-Figure Summary



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5. Standard Deviation - (A measure of spread)

$$S = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$$

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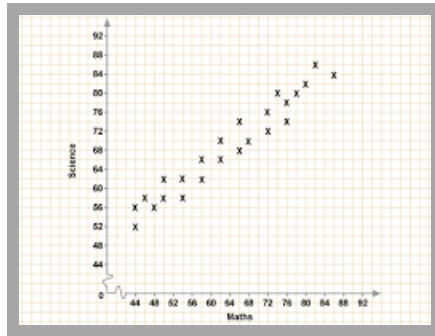
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Topic 18 - Scattergraphs (Chapter 25)

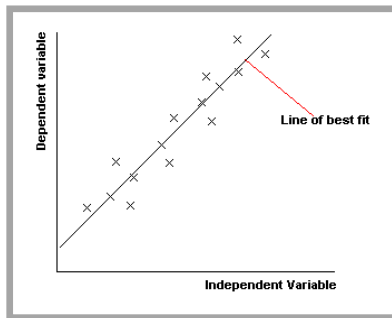


1. Scattergraphs



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2. Correlation and Best-Fit Line



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Topic 19 - Probability / Risk (Chapter 26)



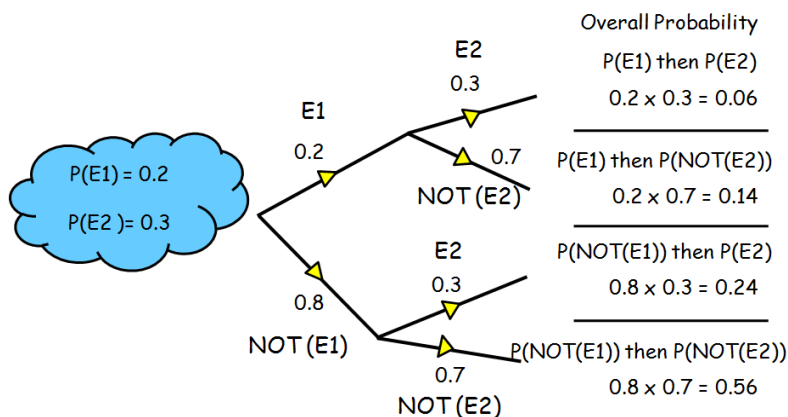
1. Probability and Expected Frequency

To work out a probability

$$P(A) = \frac{\text{Number of outcomes}}{\text{Total number of possible outcomes}}$$

Value always between 0 and 1

2. Probability Tree Diagram



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For my Finance & Statistics Assessment I will
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Pupils must achieve a minimum of 60%

Finance & Statistics Assessment	Pass	Failed
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