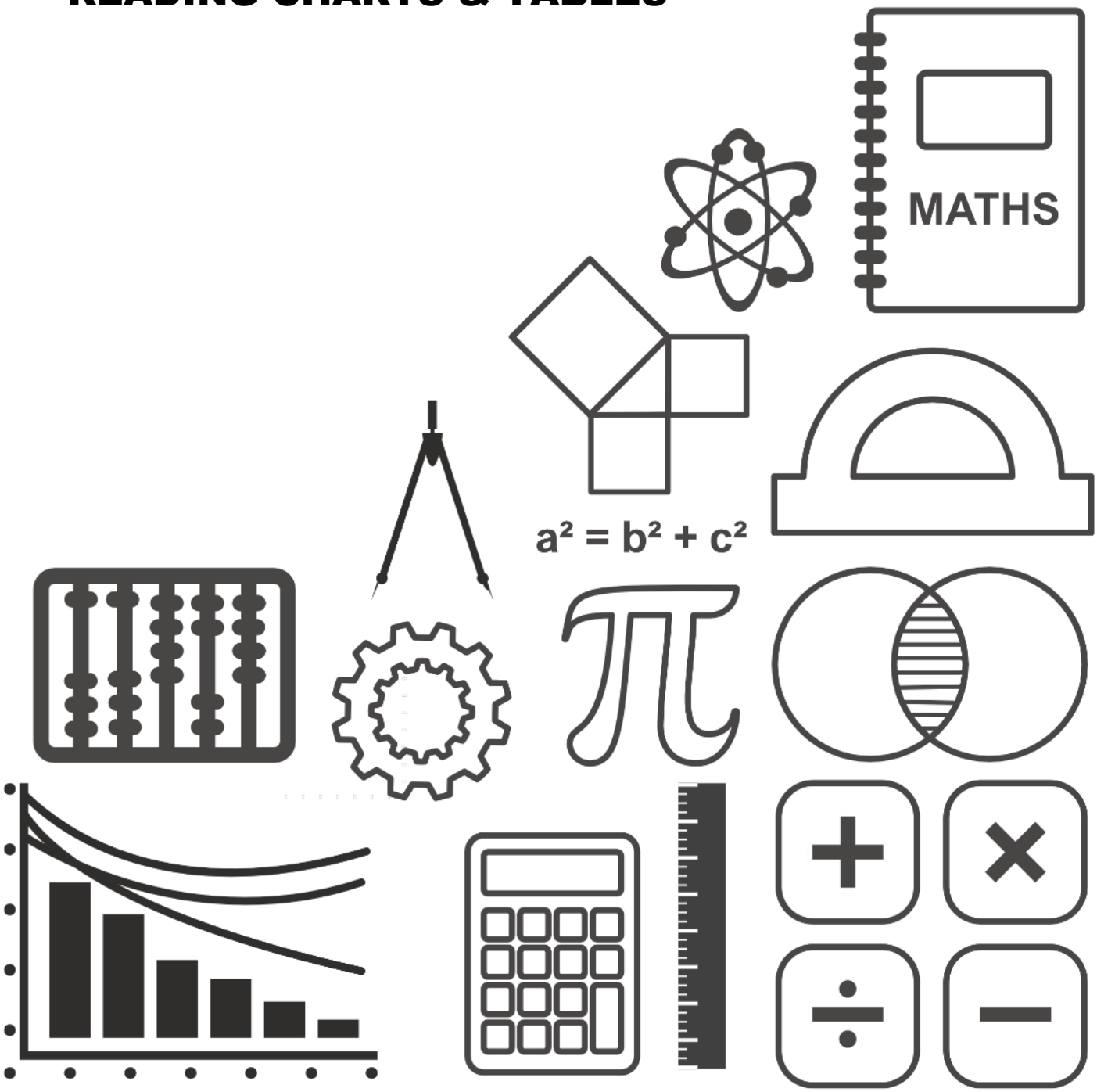
MATHSDIY

GCSE TOPIC BOOKLET
READING CHARTS & TABLES



1. Below are parts of two train time-tables.

Swansea to Bristol Parkway

Swansea	10:28	10:55	11:28	11:55
Neath	10:39	11:05	11:39	12:05
Port Talbot	10:47	11:12	11:47	12:12
Bridgend	10:59	11:25	11:59	12:25
Cardiff	11:22	11:47	12:22	12:47
Newport	11:39	12:08	12:39	13:08
Bristol Parkway	11:59	12:30	12:59	13:30

Bristol Parkway to Sheffield

Bristol Parkway	11:40	12:40	13:40	14:40
Cheltenham	12:10	13:12	14:10	15:11
Birmingham	13:03	13:58	14:56	15:59
Derby	13:42	14:40	15:39	16:40
Sheffield	14:17	15:18	16:17	17:19

(a) Sophie gets on the 10:55 from Swansea at Bridgend and gets off at Newport. How long should her journey take?

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[2]

(b) David lives in Port Talbot and needs to get to Birmingham by half past three in the afternoon.

(i) What is the latest train he can catch from Port Talbot to do this?

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[1]

(ii) How long should he have to wait at Bristol Parkway?

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[1]

(iii) On the day he travelled, owing to signal problems, the Swansea trains were 10 minutes late arriving at Bristol Parkway and the trains to Sheffield were 15 minutes late leaving Bristol Parkway.
Given that the trains kept to their normal speed, at what time did David arrive in Birmingham? Give a full explanation for your answer.

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[2]

2. The table below gives the charges for hiring a concrete mixer by the day.

Charge for the first day	Charge per day after the first day
£16.10	£8.15

There are special offers for hiring the concrete mixer for a weekend or from Monday to Friday.

Weekend (Saturday & Sunday)	Week (Monday to Friday)
£22.54	£32.20

James wants to hire a concrete mixer from Monday to Thursday.
How much cheaper is it to hire a concrete mixer for a week (Monday to Friday) than it is to hire it from Monday to Thursday by the day? [6]

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3. The following table gives the postal charges for sending letters, small packets and printed papers over 100 g to various parts of the world.

Letters, Small Packets and Printed Papers over 100 g

Weight up to and including	UK & Europe	World Zone 1	World Zone 2
150 g	£2.93	£3.86	£3.90
200 g	£3.16	£4.42	£4.50
250 g	£3.39	£4.98	£5.10
300 g	£3.62	£5.54	£5.70
400 g	£4.22	£6.76	£6.98
500 g	£4.82	£7.98	£8.26
600 g	£5.42	£9.20	£9.54
700 g	£6.02	£10.42	£10.82
800 g	£6.62	£11.64	£12.10
900 g	£7.22	£12.86	£13.38
1000 g	£7.82	£14.08	£14.66
2000 g	£13.82	£26.28	£27.46
For each additional 100 g, or part thereof, add			
	60p	£1.22	£1.28

World Zone 1
USA
South America
Canada
Africa
Far East

World Zone 2
Australia
New Zealand

(a) What is the cost of sending a letter weighing 200 g to Europe? [1]

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(b) What is the cost of sending a package weighing 585 g to Canada? [1]

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(c) *You will be assessed on the quality of your written communication in this part of the question.*

Gethin sends a package weighing 2460g to New Zealand.
How much change should he get from £40?
You must show all your working. [7]

4. *(a)* An internet company, offering money exchange, displays a conversion exchange table as shown below.

		Exchange from				
		US dollars 1$	GB pounds £1	Canadian dollars 1$	euros 1€	Australian dollars 1$
Exchange to	US dollars	1	1.59003	0.967202	1.4304	0.916279
	GB pounds	0.628915	1	0.608287	0.8996	0.576261
	Canadian dollars	1.03391	1.64395	1	1.4789	0.94735
	euros	0.699105	1.1116	0.676175	1	0.640575
	Australian dollars	1.09137	1.73532	1.05557	1.56109	1

The method of using this table of exchanges is as follows:

To exchange GB pounds to euros, read down the table, £1 is 1.1116 euros.

Using the exchange rates from the table, calculate the following.

(i) Exchange 200 US dollars to Australian dollars. [2]

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(ii) How many Canadian dollars were exchanged to give 250 euros? [2]

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(b) Fill in the **two** gaps, indicated with dotted lines, in the following conversion exchange table. [3]

		Exchange from		
		Hong Kong dollar 1$	Japanese yen 1 yen	euro 1€
Exchange to	Hong Kong dollar	1		.....
	Japanese yen		1	133·5
	euro	0·090147	.....	1

5. The table shows typical ranges for fares and journey times for London taxis.

London Taxis		Tariff 1	Tariff 2	Tariff 3
Distance (up to)	Approximate journey time	Monday to Friday 06:00 to 20:00	Monday to Friday 20:00 to 22:00 Saturday and Sunday 06:00 to 22:00	Every night 22:00 to 06:00
1 mile	6 - 13 mins	£5.60 - £8.60	£5.60 - £8.80	£6.60 - £8.80
2 miles	10 - 20 mins	£8.40 - £13.40	£8.80 - £13.60	£10.20 - £14.40
4 miles	16 - 30 mins	£15 - £21	£16 - £22	£17 - £27
6 miles	28 - 40 mins	£23 - £28	£28 - £31	£28 - £32

Example:
A journey of 5 miles at midnight would cost between £28 and £32, depending on the length of time of the journey.

Use the table to answer the following questions.

(a) Peter hires a taxi on a Thursday at 10:25 a.m. for a journey of 2 miles.
What is the least amount he should be charged and what would be the earliest time he would get there? [2]

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Least amount charged ..... Earliest time .....

(b) Joanna and her 4 friends are out together on a Friday at 23:30

They are staying at the same hotel, which is about $3\frac{1}{2}$ miles away.

They could hire a taxi or they could buy tickets on the underground tube costing £4 each.
For the 5 friends, explain how it is possible that hiring a taxi might

- save money, or
- cost more money.

You must show all your working for both of these possibilities. [4]

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6. The following is part of a train timetable from Bangor to Chester.

Bangor	11:07	12:24	13:07
Llandudno Junction	11:25	12:42	13:25
Colwyn Bay	11:31	12:48	13:31
Rhyl	11:41	12:59	13:41
Prestatyn	11:47	13:05	13:47
Flint	12:00	13:18	14:00
Chester	12:19	13:32	14:19

(a) Bob catches the 11:31 train from Colwyn Bay.
When should the train arrive at Prestatyn? [1]

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(b) Mary catches the 13:25 train at Llandudno Junction.
How long should it take her to get to Chester? [2]

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7. Across the world, temperatures are measured using different units.
All the unit scales are uniform.

Approximate conversions are often used to give a reading in more than one unit in scientific reports.

Use the information given below to complete the tables.

(a)

degrees Celsius	degrees Fahrenheit
20	68
30	86
40	104
50	.....
60	140
70	158

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[1]

(b)

kelvin	degrees Celsius
0	.....
100	.....
200	−73·15
300	26·85
400	126·85
500	226·85

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[2]

(c)

kelvin	degrees Celsius	degrees Fahrenheit
340	.....	.....

[5]

8. The table below gives information from the Highway Code on stopping distances for cars.

Speed in mph	Stopping distance in metres = Thinking distance + Braking distance (Thinking distance is given first, followed by Braking distance)
20 mph	6 m | 6 m
30 mph	9 m | 14 m
40 mph	12 m | 24 m
50 mph	15 m | 38 m

Diagram not drawn to scale

(a) A warning sign for a crossroads is to be placed on a road, which has a speed limit of 30 mph.
Use the data given above to find the minimum distance that the warning sign should be placed from the crossroads.

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[1]

(b) An average car is approximately 4 metres in length. How many car lengths is the stopping distance for a car travelling at 40 mph?

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[2]

(c) Complete the table below.

Speed	
mph	km/h
30	.....
50	80
.....	112

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[3]

(d) The stopping distances given in the Highway Code are given assuming good driving conditions and alert drivers.
When a driver is tired, the thinking distance increases by 30% and the braking distance increases by 20%.
Calculate the stopping distance, in metres, for a tired driver travelling at 50 mph in good driving conditions.

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[4]