

This assessment is based on a now-expired version of the achievement standard and may not accurately reflect the content and practice of external assessments developed for 2025 onwards.

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91946R



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 1 Mathematics and Statistics 2024

91946 Interpret and apply mathematical and statistical information in context

Credits: Five

RESOURCE BOOKLET

Refer to this booklet to answer the questions for Mathematics and Statistics 91946.

Check that this booklet has pages 3–9 in the correct order and that none of these pages is blank.

DO NOT TAKE THESE ASSESSMENT MATERIALS OUT OF THE ASSESSMENT ROOM.

NOTES AND CLARIFICATIONS

This page explains some of the key terms that will be discussed within the resource booklet.

- **GlobalData**
GlobalData is a company formed in 2016, following the joining of several well-established data and analytics providers. It is a reliable research, consulting, and events business, with insight into the world's largest industries.
<https://www.globaldata.com/>
- **How much is 1 GB of data?**
1 GB (gigabyte) is equivalent to 1024 megabytes (MB) or 1 048 576 kilobytes (kB).
As a rough guide, 1 GB of data would let you do one of the following:
 - watch one hour and 20 minutes of video at standard definition
 - stream roughly eight hours of high quality music (320 kbps)
 - send or receive about 1000 emails
 - send over 1.5 million WhatsApp messages (without pictures or video).
- **Mbps and MBps**
Megabits per second (Mbps) measures how fast an internet connection is.
Megabytes per second (MBps) measures how fast a file can upload or download.
- **What is 5G?**
5G stands for 5th generation. It is the latest cellular network after 2G, 3G, and 4G. The 5G network is more technologically advanced, and implementation has begun throughout the world and here in New Zealand.
- **OECD**
OECD is an abbreviation for the Organisation for Economic Co-operation and Development.
Essentially, the OECD provides a united front for countries to share their common eco-social problems, as well as collaborate on finding solutions. The organisation was founded to boost world trade and economic progress, providing a platform to compare policy experiences, seek answers to common problems, identify good practices, and co-ordinate domestic and international policies of its members.
The majority of OECD members are high-income economies, ranked as “very high” in the Human Development Index, and are regarded as “developed countries”. There are currently 38 countries who are members of the OECD.
The top five members with regards to economic development (based on real gross domestic product RGDP) are: the United States of America (US), Japan (JP), Germany (DE), France (FR), the United Kingdom (UK).
<https://www.oecd.org/>
- **2degrees** is a New Zealand company which provides customers with “great value and a great network”.
<https://www.2degrees.nz>
- **One NZ** is a New Zealand company which provides customers with “all your mobile, broadband, and business needs”.
<https://one.nz/welcome/>
- **Carryover data**
Carryover all your unused Pay Monthly mobile data on selected plans each month for up to a year.
- **Endless data**
Use data unlimited with endless options across selected plans.
- **Shared data**
Share data for free to other 2degrees mobile users on carryover plans.
- **Group/companion plans**
Add extra people to the monthly bill of the account holder at a cheaper rate.

RESOURCE 1A

A telecom research analyst at **GlobalData**, comments:

The average monthly data usage is predicted to increase from 6.5 GB in 2023 to 12.2 GB in 2028, driven by the increasing consumption of online video and social media content over smartphones, on the back of the growing availability and adoption of 4G/ 5G services and the packages that recognise the importance of data offered by mobile network operators.

Source: www.globaldata.com/media/technology/mobile-data-to-drive-overall-mobile-services-market-in-new-zealand-over-2023-2028-forecasts-globaldata/

RESOURCE 1B

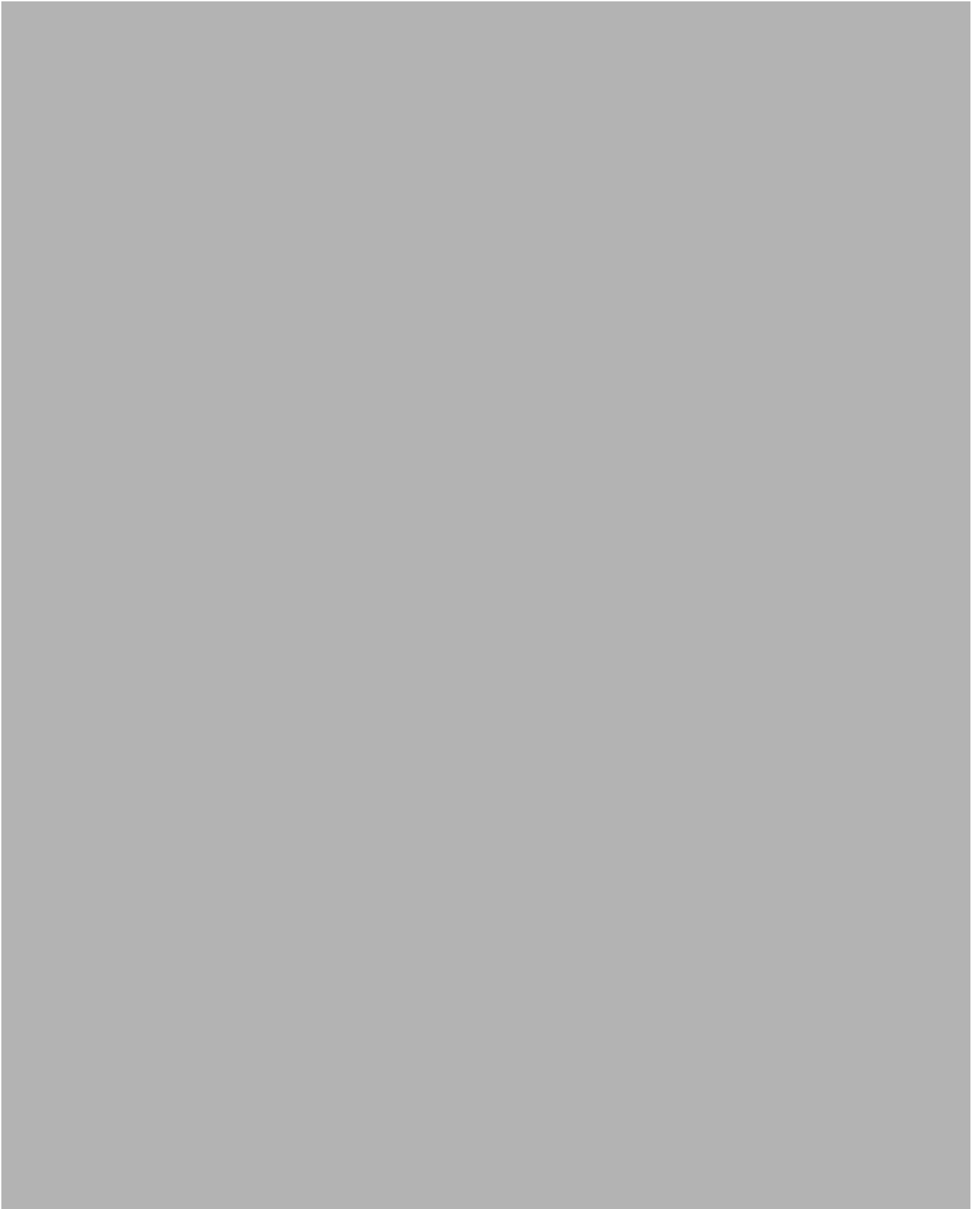
Average monthly mobile data usage per person in New Zealand from 2012 to 2021



Source: www.statista.com/statistics/1322364/new-zealand-mobile-data-usage/

RESOURCE 2

This information has been taken from the two company websites:



Source: <https://www.2degrees.nz/>

Source: <https://one.nz/>

RESOURCE 3**2020 mobile data used vs Cost for an individual's subscription for mobile services per gigabyte**

Source: <https://thebit.nz/opinion/nzs-mobile-data-is-the-third-most-expensive-in-the-world-sort-of/>

Key

AT= Austria	AU= Australia	BE= Belgium	BH= Bahrain
CA= Canada	CH= Switzerland	CN= China	DE= Germany
DK= Denmark	EE= Estonia	ES= Spain	FI= Finland
FR= France	GR= Greece	HK= Hong Kong	HR= Croatia
IE= Ireland	IN= India	IS= Iceland	IT= Italy
KR= South Korea	LT= Lithuania	LU= Luxembourg	LV= Latvia
MX= Mexico	NL= Netherlands	NO= Norway	NZ= New Zealand
PL= Poland	SE= Sweden	SG= Singapore	TR= Turkey
TW= Taiwan	UK= United Kingdom	US= USA	

RESOURCE 4

Growth of mobile data usage continues – but at a slower pace

Mobile data usage continues to grow, but at a slower pace, according to new OECD broadband portal data released on 13 July 2023.

Data usage per mobile broadband subscription in OECD countries grew 17% in 2022, compared to an average annual growth rate of 29% between 2017 and 2021.

Nonetheless, the volume of mobile data usage overall per subscription has more than doubled in four years, from 4.7 GB per month to 10.4 GB **in 2022**.

Of note is the range of mobile data consumption volumes registered across OECD countries, spanning from 4.3 GB per user per month to 42 GB. This is a 10-times difference between the lowest and highest volumes observed.

The top five OECD countries with regard to the highest data usage levels are :

Latvia (LV) (42 GB per month); Finland (FI) (40 GB per month); Austria (AT) (30 GB per month); Lithuania (LT) (28 GB per month); Iceland (IS) (24 GB per month).

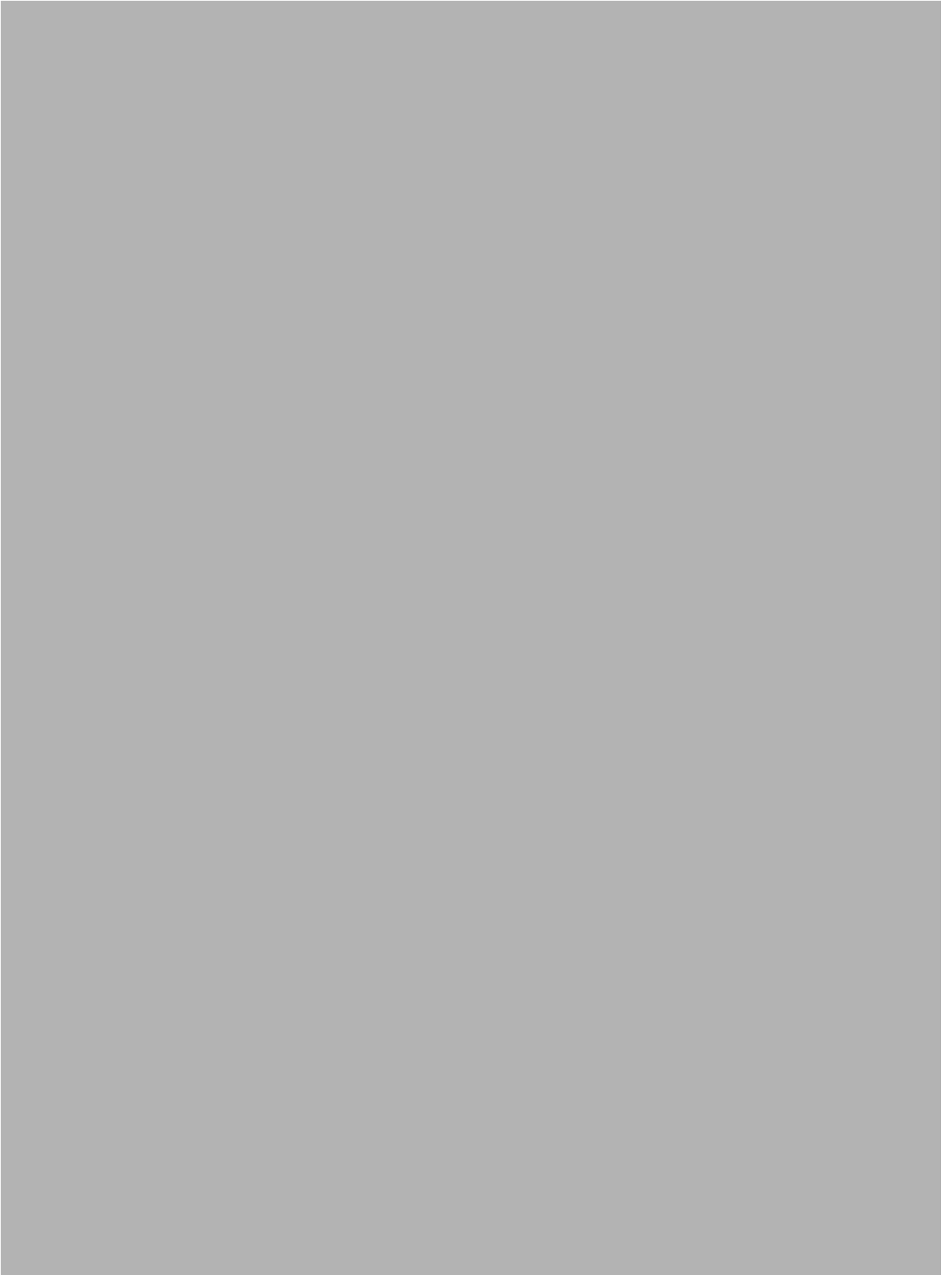
These countries consume three times more data than the OECD average. This gap, between these leading countries and the OECD average, has continued to widen year on year.

Range of mobile data usage per month in OECD countries, 2022



Source: <https://www.oecd.org/digital/broadband/broadband-statistics-update.htm>

RESOURCE 5A



Adapted from: https://www.visualcapitalist.com/cost-of-mobile-data-worldwide/#google_vignette

RESOURCE 5B

