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91584M



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

SUPERVISOR'S USE ONLY

Tohua tēnei pouaka mēnā
KĀORE koe i tuhi kōrero ki
tēnei pukapuka

Te Pāngarau me te Tauanga (Tauanga), Kaupae 3, 2022

91584M Te arotake i ngā pūrongo nā runga i te tauanga

Ngā whiwhinga: E whā

Paetae	Kaiaka	Kairangi
Te arotake i ngā pūrongo nā runga i te tauanga.	Te arotake i ngā pūrongo nā runga i te tauanga, me te whai parahautanga.	Te arotake i ngā pūrongo nā runga i te tauanga, me te whai māramatanga tauanga.

Tirohia kia kitea ai e rite ana te Tau Ākonga ā-Motu (NSN) kei runga i tō puka whakauru ki te tau kei runga i tēnei whārangi.

Me whakamātau koe i ngā tūmahi KATOAA kei roto i tēnei pukapuka.

Tangohia te Pukapuka Rauemi 91584MR mai i te puku o tēnei pukapuka.

Tuhia ō whiriwhiringa KATOAA.

Tirohia kia kitea ai kei a koe te pukapuka Tikanga Tātai me ngā Tūtohi L3–STATMF.

Ki te hiahia wāhi atu anō koe mō ō tuhinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka.

Tirohia kia kitea ai e tika ana te raupapatanga o ngā whārangi 2–19 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

Kaua e tuhi i ngā wāhanga e kitea ai te kauruku whakahāngai (⚡). Ka poroa pea taua wāhanga ka mākahia ana te pukapuka.

HOATU TE PUKAPUKA NEI KI TE KAIWHAKAHAERE HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

TE TŪMAHI TUATAHI: BBC Good Food Nation – e tirohia ana e te patapatai ngā āhuatanga o tā te tamaiti kai

Tirohia te Pūrongo 1 kei te pukapuka rauemi hei whakaoti i ngā wāhanga o te tūmahi nei.

(a) E mea ana te pūrongo, ko te 3.2% te pae hapa.

(i) Whakaaturia te ara i tātaihia ai tēnei pae hapa.

(ii) Whakamāramatia te take me mātua whai te pae hapa hei whakamāori i ngā whakataunga kua hua mai i tēnei patapatai.

(b) Tautohua tētahi o ngā ōrau patapatai i te pūrongo, whakamāramatia hoki te take e kore nei e tika kia whakamahia te pae hapa i pūrongoatia ai hei waihanga i te whakaawhiwhitanga o te 95% o te horahanga whakapono mō te ōwehenga o te taupori mā te whakamahi i tēnei ōrau patapatai.

(c) E kīia nei, *kei kō atu i te haurua o ngā tamariki nō Peretānia e tapahi huawhenua ana.*

(i) Matapakina ētahi atu pārongo me mātua whai e pono ai te whakapae ko ngā tamariki i uia ai i te pūrongo nei e whakakanohi ana i ngā tamariki katoa o Peretānia i te wā o te patapatai.

QUESTION ONE: BBC Good Food Nation – survey looks at children’s eating habits

Refer to Report 1 in the resource booklet to answer the following question parts.

(a) The report states that the margin of error is 3.2%.

(i) Show how this margin of error was calculated.

(ii) Explain why the margin of error is needed to interpret any inferential claims made from this survey.

(b) Identify one of the survey percentages in the report, and explain why it would not be appropriate to use the reported margin of error to construct an approximate 95% confidence interval for the population proportion using this survey percentage.

(c) A claim is made that *over half of UK children chop vegetables*.

(i) Discuss what further information is required for the assumption to be valid that the children surveyed in this report are a representative sample of all UK children at the time of the survey.

- (ii) Tautohua TĒTAHI taurangi atu anō ka taea te ine i roto i tēnei rangahau, ka whai pānga hoki pea ki te mōhio, ki te kore mōhio rānei o ngā tamariki o Peretānia ki te tapahi huawhenua. Matapakina te āhua o te hāngai o tēnei taurangi, me tōna pānga ka puta pea ki te kōrero e mea nei kua neke atu i te haurua o ngā tamariki o Peretānia e tapahi huawhenua ana.

- (d) Me kī, ko ngā tamariki me ngā mātua katoa o Peretānia kei te whakakanohitia e ngā tamariki me ngā mātua i uia rā i roto i tēnei pūrongo, i te wā o te patapatai.

Kei te tika rānei te kōrero e whai ake nei, nā runga i ngā kōrero o roto i tēnei patapatai?

He tokomaha ake ngā mātua o Peretānia i tautoko, i kaha tautoko rānei, i te kōrero e rawe ana ā rātou tamariki ki te tunu i te kāinga i te wā o te noho rāhui tēnā i ngā mātua kāore i tautoko i tēnei kōrero.

Waihangahia TĒTAHI horahanga whakapono, ka whakamāorititia ai tēnei horahanga hei wāhanga mō tō whakautu.

TE TŪMAHI TUARUA: Ngā atakata hei whakapikinga wairua

Tirohia te Pūrongo 2 kei te pukapuka rauemi hei whakaoti i ngā wāhanga o te tūmahi nei.

- (a) Tautohua te taurangi whakamārama me te taurangi urupare mō tēnei rangahau.

Te taurangi whakamārama: _____

Te taurangi urupare: _____

- (b) I wāwāhia e ngā kairangahau ngā kaiuru e 748 puta noa i ngā rōpū akiaki.

- (i) Whakamāramatia te āhua e tika ai te wehenga (te wāwāhinga) o ngā rōpū akiaki.

- (ii) Matapakina, ka mutu, me hāngai ngā kōrero ki taua whakamātautau, te take e whakahirahira nei kia pēnei te wehenga o ngā kaiuru.

QUESTION TWO: Memes as mood boosters

Refer to Report 2 in the resource booklet to answer the following question parts.

- (a) Identify the explanatory and response variables for the study.

Explanatory variable: _____

Response variable: _____

- (b) The researchers split the 748 participants across the treatment groups.

- (i) Explain how the allocation (split) of participants into the treatment groups should have been done.

- (ii) Discuss, with specific reference to this experiment, why it is important to allocate the participants in this way.

- (c) The researchers describe creating “a single reliable measure” from the multiple item ratings for each of the four types of response (cuteness, humour, anxiety, and positive emotions).

Why was asking participants to rate each type of response to the memes multiple times using similar scales important?

Use specific evidence from the report to support your response.

- (d) A potential issue with a statistical study is extending the results inappropriately.

Discuss TWO potential issues with extending the results of this study to all people in New Zealand.

TE TŪMAHI TUATORU: Ngā Kararehe Haumi i Aotearoa i te Tau 2020

Tirohia te Pūrongo 3 kei te pukapuka rauemi hei whakaoti i ngā wāhanga o te tūmahi nei.

- (a) Tautapahia tētahi tapanga atu anō e tika ana mō te Pūrongo mō ngā Kararehe Haumi i Aotearoa i te Tau 2020.

Tautohua, whakaahuatia hoki ngā taunaki nō roto i te pūrongo hei tautoko i tō tapanga.

- (b) E kī ana te pūrongo

Kei tua ake o te haurua o ngā kāinga i Aotearoa kāore nei he kararehe haumi, engari e pīrangī ana ki te kararehe haumi.

Arotakehia tēnei kōrero mā te tātau me te whakamāori i tētahi horahanga whakapono, mā te whakamahi i ngā pārongo whaitake o te pūrongo.

QUESTION THREE: Companion Animals in New Zealand in 2020

Refer to Report 3 in the resource booklet to answer the following question parts.

- (a) Suggest a suitable alternative headline for the Companion Animals in New Zealand 2020 Report. Identify and describe the evidence in the report to support your headline.

- (b) The report states that

More than half of the households in New Zealand that don't currently have a companion animal would like to have one.

Evaluate this claim by calculating and interpreting a confidence interval using relevant information provided in the report.

English translation of the wording on the front cover

Level 3 Mathematics and Statistics (Statistics) 2022

91584M Evaluate statistically based reports

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Evaluate statistically based reports.	Evaluate statistically based reports, with justification.	Evaluate statistically based reports, with statistical insight.

Tirohia kia kitea ai e rite ana te Tau Ākonga ā-Motu (NSN) kei runga i tō puka whakauru ki te tau kei runga i tēnei whārangi.

You should attempt ALL the questions in this booklet.

Pull out Resource Booklet 91584MR from the centre of this booklet.

Show ALL working.

Make sure that you have the Formulae and Tables Booklet L3–STATMF.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–15 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (). This area may be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

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