

91584R



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## Level 3 Mathematics and Statistics (Statistics), 2017

### 91584 Evaluate statistically based reports

9.30 a.m. Monday 27 November 2017  
Credits: Four

## RESOURCE BOOKLET

Refer to this booklet to answer the questions for Mathematics and Statistics (Statistics) 91584.

Check that this booklet has pages 2–4 in the correct order and that none of these pages is blank.

**YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.**

## REPORT 1

### **Classical music ‘helps dogs relax’**

Classical music has a calming effect on dogs in rehoming centres, according to research carried out in Scotland. The study was carried out by the Scottish SPCA and the University of Glasgow and involved 50 dogs from a Scottish SPCA animal rescue and rehoming centre. 34 of the dogs were male, and 21 of the dogs were Staffordshire bull terriers.

The study involved two groups of dogs being examined over a period of two weeks in a rescue and rehoming centre. One group of dogs was observed in silence, whilst the other had classical music played into their kennels. The conditions were then switched in the second week. In both groups the dogs’ stress levels (measured through heart rates, saliva samples, and observation of behaviour) decreased after listening to classical music. Male dogs seemed to respond better than female dogs.

However, the effect lasted only for a short period, with stress levels returning to normal after one day in some cases. Scottish SPCA’s education and research manager, Gilly Mendes Ferreira, said: “Although by the end of the week their stress levels had returned to normal, the initial findings are very encouraging and show that classical music does have a positive impact on the dogs’ welfare”.

Adapted from: ‘Classical music “helps dogs relax”’, *BBC News*, 2 March 2015, <http://www.bbc.com/news/uk-scotland-glasgow-west-31695766>.

Additional information sourced from: Bowman, A., Scottish, S. P. C. A., Dowell, F. J., & Evans, N. P. (2015). ‘“Four Seasons” in an animal rescue centre; classical music reduces environmental stress in kennelled dogs’, *Physiology & Behavior*, 143, 70–82.

## REPORT 2

### **Dog owners confused on best doggy diets**

Dog owners' growing desire to feed their pets according to the latest human diet trends is leading to growing confusion and sometimes health issues for treasured pooches. Vets are seeing an increasing number of dogs being fed raw food diets to match their owners moving to paleo diets. Senior lecturer in small animal medicine and nutrition Nick Cave said if paleo fans want to put their dogs on raw food he would recommend using only commercially produced and balanced raw food from pet food companies.

Raw dog food company K9 Natural said dog owners were confusing canine nutritional needs with humans' needs. A survey of 500 dog owners was conducted by the Christchurch-based company through the online survey company Survey Monkey. K9 Natural chief executive Neil Hinton said too many dogs were still getting highly processed, carb-laden foods that were adding to a lot of the common health issues dogs had.

According to K9 Natural, the survey revealed that although 96% of New Zealanders claim their dog is a much loved family pet, over half (58%) have no idea what ingredients are in the food they feed their dog. The K9 Natural survey also revealed that 40% of dogs suffer from an array of health conditions such as muscle and joint issues, skin problems, bloating and low energy levels – all of which can be remedied by a natural, high-meat diet like K9 Natural, Hinton says.

Adapted from: 'Dog owners confused on best doggy diets', *Stuff*, 26 November 2015, <http://www.stuff.co.nz/national/74391352/Dog-owners-confused-on-best-doggy-diets>.

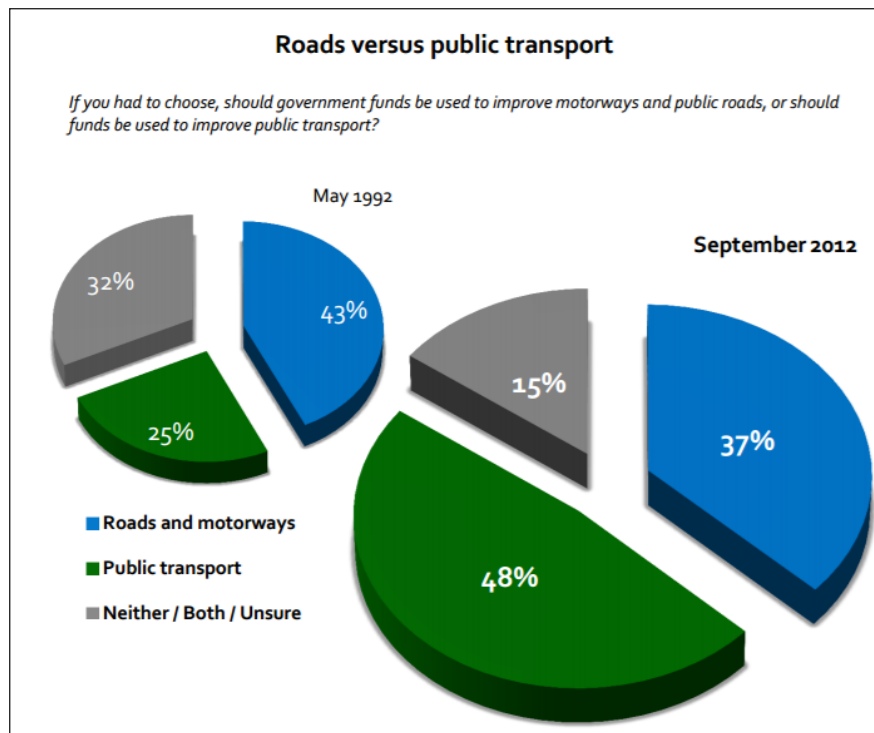
Additional information sourced from: 'Dogs weigh in on a natural high-meat diet', *K9 Natural*, 30 April 2016, <https://www.k9natural.co.nz/dogs-weigh-natural-high-meat-diet/>.

## REPORT 3

### Support soars for spending on buses, trains: Poll shows preference for public transport over motorways and roads has doubled in 20 years.

Popular support for spending on public transport has almost doubled over 20 years, according to a poll of New Zealanders. The poll by UMR Research shows a reverse from 1992, when 43 per cent of those surveyed preferred Government money to be spent on motorways and other public roads, compared with 25 per cent support for public transport as the priority spending candidate in 1992.

By September 2012, when the latest poll was taken, the tables had turned.



Those supporting priority spending on public transport had grown to 48 per cent, compared with 37 per cent favouring roads.

The portion who were unsure or supported equal spending on both categories fell to 15 per cent, from 32 per cent in 1992.

Survey participants were asked the following question by phone: “If you had to choose, should Government funds be used to improve motorways and public roads, or should funds be used to improve public transport?”

A Labour Party transport spokesman said the poll showed the public understood “we cannot go on building more and more motorways because they just fill up with cars, and people know you cannot have a successful city without a proper public transport system”.

Both the 1992 and the 2012 UMR research is based on a nationwide telephone survey using a sample of New Zealanders aged 18 and over for each survey. Sophisticated quotas & weights ensure the sample is as representative as possible. The margin of error for both surveys is 3.6%.

Adapted from: ‘Support soars for spending on buses, trains’, *NZ Herald*, 25 February 2013, [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10867504](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10867504).

Additional information sourced from: [http://umr.co.nz/sites/umr/files/umr\\_mood\\_of\\_the\\_nation\\_2013\\_online.pdf](http://umr.co.nz/sites/umr/files/umr_mood_of_the_nation_2013_online.pdf) p. 26.