Warm up Number 10 (2021 NH Exam 1)

Use the following information to answer Questions 8 and 9.

The *blood pressure* (normal, high) and the *age group* (60–69 years, 70–79 years, 80+ years) of a group of people were recorded. The results are shown in the two-way frequency table below.

Blood pressure	Age group		
	60–69 years	70–79 years	80+ years
normal	42	23	11
high	38	37	29

Question 8

In this group of people, the percentage of people who have high blood pressure and are in the 70–79 years age group is closest to

A. 21%
B. 23%
C. 35%
D. 37%
E. 38%

Question 9

In this group of people, the percentage of people in the 60–69 years age group who have normal blood pressure is closest to

A. 23%
B. 38%
C. 42%
D. 48%
E. 53%

Use the following information to answer Questions 10 and 11.

Bone length, in millimetres, of one of the metacarpal bones and *height*, in centimetres, were recorded for a sample of nine people. The results are shown in the table below.

***Bone length* (mm)**	45	51	39	41	48	49	46	43	47
***Height* (cm)**	171	178	157	163	172	183	173	175	173

Data: StatSci.org, <www.statsci.org/data/general/stature.txt>

Question 10

The mean and the standard deviation of *bone length* for this sample of nine people, in millimetres, are closest to

A. mean = 45.4, standard deviation = 3.65

B. mean = 45.4, standard deviation = 3.88

C. mean = 45.5, standard deviation = 3.65

D. mean = 45.5, standard deviation = 3.66

E. mean = 45.6, standard deviation = 3.88

Question 11

The equation of the least squares line that enables *bone length* to be predicted from *height* is closest to

A. *bone length* = –28.6 + 0.431 × *height*

B. *height* = –28.6 + 0.431 × *bone length*

C. *bone length* = 94.4 + 1.70 × *height*

D. *height* = 94.4 + 1.70 × *bone length*

E. *bone length* = 94.4 + 0.431 × *height*

Question 12

A least squares line is used to model the association between *arm span*, in centimetres, and *height*, in centimetres.

With the values of the y-intercept and slope left unrounded, the equation of the least squares line was found to be

$$arm\ span = -67.68040231\ldots + 1.35575905\ldots \times height$$

With the numerical values rounded to five significant figures, the equation of this least squares line is

A. *arm span* = –67.68 + 1.3558 × *height*

B. *arm span* = –67.680 + 1.3558 × *height*

C. *arm span* = –67.700 + 1.4000 × *height*

D. *arm span* = –67.680 + 1.3560 × *height*

E. *arm span* = –67.68040 + 1.35576 × *height*

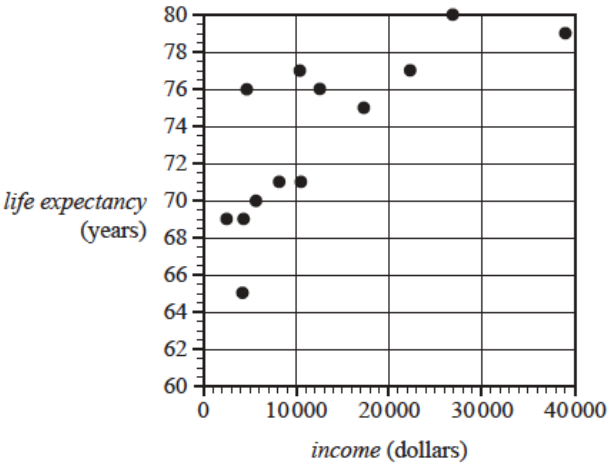
Use the following information to answer Questions 13 and 14.

The table below shows the mean *life expectancy*, in years, and the per capita *income*, in dollars, for 13 countries.

A scatterplot displaying this data is also shown.

Life expectancy (years)	*Income* (dollars)
69	2589
76	4717
70	5721
71	8282
71	10 630
76	12 610
77	22 330
80	26 930
75	17 360
65	4261
77	10 430
79	39 060
69	4412

Data: Gapminder



Data: Gapminder

Question 13

A $\log_{10}$ transformation applied to the variable *income* can be used to linearise the scatterplot.

With $\log_{10}(income)$ as the explanatory variable, the equation of the least squares line fitted to the linearised data is closest to

A. $life\ expectancy = -0.5840 + 0.06219 \times \log_{10}(income)$

B. $life\ expectancy = 0.06219 - 0.5840 \times \log_{10}(income)$

C. $life\ expectancy = -0.5840 + 37.35 \times \log_{10}(income)$

D. $life\ expectancy = 10.32 + 37.35 \times \log_{10}(income)$

E. $life\ expectancy = 32.35 + 10.32 \times \log_{10}(income)$