



Units 3 and 4 Further Maths: Exam 1

Practice Exam Solutions

Stop!

Don't look at these solutions until you have attempted the exam.

Any questions?

Check the Engage website for updated solutions, then email practiceexams@ee.org.au.

Section A

Core: Data Analysis

Question 1

The correct answer is C.

Question 2

The correct answer is E.

Question 3

The correct answer is B.

Question 4

The correct answer is C.

Question 5

The correct answer is C.

Question 6

The correct answer is B.

Spread of the middle 50% of the data is equal to the IQR.

Therefore, $IQR_{12A}=12.5$ and $IQR_{12B}=12$ and IQR_{12B} is not greater than IQR_{12A}

B is incorrect, so the answer is B.

Question 7

The correct answer is C.

Income is the independent variable and % spent on luxury items is the dependent variable.

From the CAS: $a=1.69$, $b=0.13$

C is correct

Question 8

The correct answer is A.

From the CAS: $r=0.92$

Strong positive relationship exists when $0.75 \leq r \leq 0.99$, so A is correct.

Question 9

The correct answer is C.

$$\text{seasonal index} = \frac{\text{actual figure}}{\text{deseasonalised figure}}$$

Re-adjusting the formula we get:

$$\text{deseasonalised snowfall} = \frac{\text{actual snowfall}}{1.25} = 0.8 * \text{actual snowfall}$$

So, to determine the deseasonalised snowfall for winter the actual snowfall should be multiplied by 0.8, or decreased by 20%. C is correct.

Question 10

The correct answer is D.

Inserting age = 23 back into the given equation to determine the *predicted* eye test result gives:

$$\text{eye test result} = 21.94 - 0.12(23) = 19.18$$

residual value = actual value – predicted value

Therefore, residual value = 19.1 – 19.18 = -0.08. D is correct.

Question 11

The correct answer is A.

$$\bar{x} = 184.5, s = 3.6$$

$$(1) 177.3 - 184.5 = -7.2 = -2s$$

$$(2) 188.1 - 184.5 = 3.6 = s$$

Therefore the selected region is between $\bar{x} - 2s$ and $\bar{x} + 1s$ which is equivalent to:

13.5% + 34% + 34% \approx 82% of the normal distribution, so A is correct.

Question 12

The correct answer is B.

$$z = \frac{x - \bar{x}}{s_x}$$

Therefore, Cara's standard score/z score = $\frac{9.9-8.2}{1.1} \approx 1.55$

Comparing this standard score to the other competitors', it is the highest. B is correct.

Question 13

The correct answer is A.

The y co-ordinate for the October profit figure after a three-median smoothing has been performed will be the median y-value for the profits of September, October and November.

This is equal to middle y-value, or, $(y_2) = \text{Profit for November} \approx \7m . A is correct.

Section B

Module 1: Number patterns and applications

Question 1

The correct answer is B.

Question 2

The correct answer is C.

Question 3

The correct answer is E.

Question 4

The correct answer is C.

Question 5

The correct answer is C.

Question 6

The correct answer is A.

Question 7

The correct answer is A.

Question 8

The correct answer is E.

Question 9

The correct answer is B.

Module 2: Geometry and trigonometry

Question 1

The correct answer is D.

Question 2

The correct answer is E.

Question 3

The correct answer is B.

Question 4

The correct answer is C.

Question 5

The correct answer is A.

Question 6

The correct answer is B.

Question 7

The correct answer is E.

Question 8

The correct answer is A.

Question 9

The correct answer is D.

Module 3: Graphs and relations

Question 1

The correct answer is D.

Question 2

The correct answer is B.

Question 3

The correct answer is A.

Question 4

The correct answer is B.

Question 5

The correct answer is E.

Question 6

The correct answer is D.

Question 7

The correct answer is E.

Question 8

The correct answer is B.

Question 9

The correct answer is E.

Module 4: Business-related mathematics

Question 1

The correct answer is A.

Question 2

The correct answer is B.

Question 3

The correct answer is B.

Question 4

The correct answer is D.

Question 5

The correct answer is D.

Question 6

The correct answer is C.

Question 7

The correct answer is D.

Question 8

The correct answer is D.

Question 9

The correct answer is B.

Module 5: Networks and decision mathematics**Question 1**

The correct answer is E.

Question 2

The correct answer is B.

Question 3

The correct answer is D.

Question 4

The correct answer is A.

Question 5

The correct answer is B.

Question 6

The correct answer is B.

Question 7

The correct answer is E.

Question 8

The correct answer is C.

Question 9

The correct answer is D.

Module 6: Matrices

Question 1

The correct answer is B.

Question 2

The correct answer is C.

Question 3

The correct answer is D.

Question 4

The correct answer is A.

Question 5

The correct answer is D.

Question 6

The correct answer is E.

Question 7

The correct answer is D.

Question 8

The correct answer is D.

Question 9

The correct answer is B.