

Foundations of Advanced Mathematics  
**AS Core Mathematics Bridging Test 1**

**Questions**

1 Three of the following statements are true and **one** is false. Which one is **false**?

A The highest common factor (HCF) of 42 and 70 is 14.

B 97 is a prime number.

C  $\frac{1}{4} + \frac{1}{12} = \frac{1}{3}$

D 15% of £80 is £10.00.

2 The number 7654.451 is written below in four different ways.

Three of the ways are correct and **one** is incorrect. Which one is **incorrect**?

A 8000, correct to the nearest thousand.

B 7654.5, correct to 1 decimal place.

C 7600, correct to 2 significant figures.

D 7654, correct to the nearest integer.

3 An electrician charges the following rates:

Call-out charge including work for up to one hour	£42
For each extra half-hour or part of a half-hour	£21

The electrician completed a job which took 1 hour 35 minutes.

Which **one** of the following is the **correct** charge?

A £42

B £63

C £66.50

D £84

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- 4 The table below lists the areas, in square miles, of the continents of the world.

Continent	Area (square miles)
Africa	$1.2 \times 10^7$
Asia	$1.5 \times 10^7$
Europe	$9.0 \times 10^6$
North America	$7.5 \times 10^6$
South America	$4.5 \times 10^6$
Australasia	$6.0 \times 10^6$

Three of the following statements are true and **one** is false. Which one is **false**?

- A North and South America together cover the same area as Africa.
- B Asia has the largest area.
- C Europe is 50% larger than Australasia.
- D Australasia is 4 times as big as Asia.
- 5 Which **one** of the following has the **largest** value?
- A  $62\frac{1}{2}\%$  of 16
- B 8 divided by  $\frac{2}{3}$
- C  $\frac{4}{5}$  of 15.5
- D  $\sqrt{132.25}$
- 6 Catherine chooses three numbers,  $x$ ,  $y$  and  $z$ . She adds the first two, then multiplies her answer by itself and finally multiplies her result by the third number.

Which **one** of the following is a **correct** algebraic expression for her final answer?

- A  $z(x+y)^2$
- B  $[z(x+y)]^2$
- C  $x^2z + y^2z$
- D  $zx^2y^2$

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- 7 Three of the following statements are true and **one** is false. Which one is **false**?
- A  $2^3 \times 3^2 = 6^5$
- B  $3^8 \div 3^4 = 3^4$
- C  $2^9 \div 2^{-3} = 2^{12}$
- D  $\frac{2^5 \times 3^4}{6^2 \times 9} = 2^3$
- 8 Three of the following statements are true and **one** is false. Which one is **false**?
- A  $x^2 - 5x - 14 = (x - 7)(x + 2)$
- B  $x^2 - 25 = (x - 5)^2$
- C  $(3x - 4)(4x - 3) = 12x^2 - 25x + 12$
- D  $2x^2y + 4xy^2 = 2xy(x + 2y)$
- 9 In the four statements below,  $n$  stands for an integer.
- Three of the following statements are true and **one** is false. Which one is **false**?
- A  $n - 2 > 3$  for the integers 6, 7, 8, ... .
- B 0, 1, 2 and 3 are the only integers for which  $n^2 \leq 9$ .
- C  $3 - 2n > 1$  for the integers 0, -1, -2, ... .
- D  $2 < n + 6 < 10$  can be rewritten as  $-4 < n < 4$ .
- 10 When a pot of paint is half full it weighs 4 kg. When it is one quarter full it weighs 3 kg.
- Which **one** of the following is the **correct** weight of the pot of paint when full?
- A 4 kg      B 6 kg      C 8 kg.      D 12 kg