

Foundations of Advanced Mathematics
AS Pure Mathematics Bridging Test 11

Questions

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

- A $5.72 \text{ km} = 572\text{m}$
- B $2.5 \text{ kg} + 150 \text{ g} = 2.65 \text{ kg}$
- C $900\text{mm}^2 = 9 \text{ cm}^2$
- D $1800 \text{ seconds} = \text{half an hour}$

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

- A The square of 100 is 10 000.
- B The cube root of 125 is 5.
- C The highest common factor (HCF) of 70 and 105 is 7.
- D The lowest common multiple (LCM) of 15 and 20 is 60.

3 You are given $a=9$, $b=-1$ and $c=2$.

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

- A $\frac{a}{c-b} = 3$
- B $a-b \times c = 20$
- C $(c-a)^2 = 49$
- D $a^2 + b^2 + c^2 = 86$

4 Three of the following statements are reasonable but **one** is unreasonable. Which one is **unreasonable**?

- A The mass of a baby at birth is usually less than 1 kg.
- B An express train reaches a maximum speed of about 150 km h⁻¹.
- C The height of a car is about 1.4 m.
- D The length of an adult bed is about 190 cm.

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

A The solution of $\frac{2x}{5} = 3$ is $x = 7.5$.

B The solution of $4x - 3 = 21$ is $x = 6$.

C The solution of $\frac{4}{x} = 5$ is $x = \frac{5}{4}$.

D The solution of $5(x + 7) + x = 33$ is $x = -\frac{1}{3}$.

6 Pads of paper cost p pounds each, rulers cost r pence each and a packet of 10 pens costs n pence.
Which **one** of the following expressions gives the **total** cost of 10 pads of paper, 30 rulers and 60 pens?

A $\pounds(10p + 0.3r + 0.06n)$

B $\pounds 100(10p + 30r + 6n)$

C $\pounds(10p + 30r + 6n)$

D $\pounds \frac{1}{100}(10p + 30r + 60n)$

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

A $c^2 \times c^3 = c^5$

B $(3c)^3 = 27c^3$

C $(c^4)^2 = c^8$

D $\frac{6c^{12}}{2c^3} = 3c^4$

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

A $4(x-2)+3(x+7)=7x+13$

B $(x-8)^2 = x^2 - 16x - 64$

C $(3x+1)(x-4)=3x^2 - 11x - 4$

D $2x(x-3)-x=2x^2 - 7x$

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

A The solution of $2x+3 < 7$ is $x < 2$.

B The solution of $x-5 < 6x$ is $x < 1$.

C The solution of $7x-2 > 3x+4$ is $x > \frac{3}{2}$.

D The solution of $2x > 3-x$ is $x > 1$.

10 Which **one** of the following is the **correct** x -value for this pair of simultaneous equations?

$$\begin{aligned}x+3y &= -5 \\ 3x-15y &= 1\end{aligned}$$

A $x = -3$

B $x = -3.25$

C $x = -12$

D $x = -13$