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 km = 572m

B 2.5 kg + 150 g = 2.65 kg

C 900mm2 = 9 cm2

D 1800 seconds = 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 $\dfrac{a}{c-b} = 3$

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 $£(10p + 0.3r + 0.06n)$

B $£100(10p + 30r + 6n)$

C $£(10p + 30r + 6n)$

D $£\frac{1}{100}(10p + 30r + 60n)$

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** $x=-13$