Foundations of Advanced Mathematics

AS Pure Mathematics Bridging Test 6

Questions

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

A 234.611 correct to the nearest integer is 235.

B 10 100 correct to the nearest thousand is 10 000.

C 0.003672 correct to 3 significant figures is 0.004.

D 2.0099 correct to 1 decimal place is 2.0.

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

A $(-3) \times (-4) = 12$

B $(-12)^2 = 144$

C $(-4) - (-5) = -9$

D $2^3 \times 2^4 = 2^7$

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

A 48 is a factor of 144.

B 91 is a prime number.

C The lowest common multiple (LCM) of 24 and 40 is 120.

D The highest common factor (HCF) of 24 and 40 is 8.

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4 The formula for converting degrees Celsius to degrees Fahrenheit is

$$F = \frac{9}{5}C + 32 .$$

Three of the following methods for calculating F are correct and **one** is wrong.
Which one is **wrong**?

A Multiply C by 9, divide by 5 and add 32.

B Multiply C by 1.8 and add 32.

C Multiply C by 9, then add 160 and divide the result by 5.

D Add 32 to C and then multiply the result by 1.8.

5 Which **one** of the following expressions can be correctly simplified to $\frac{x+1}{12}$?

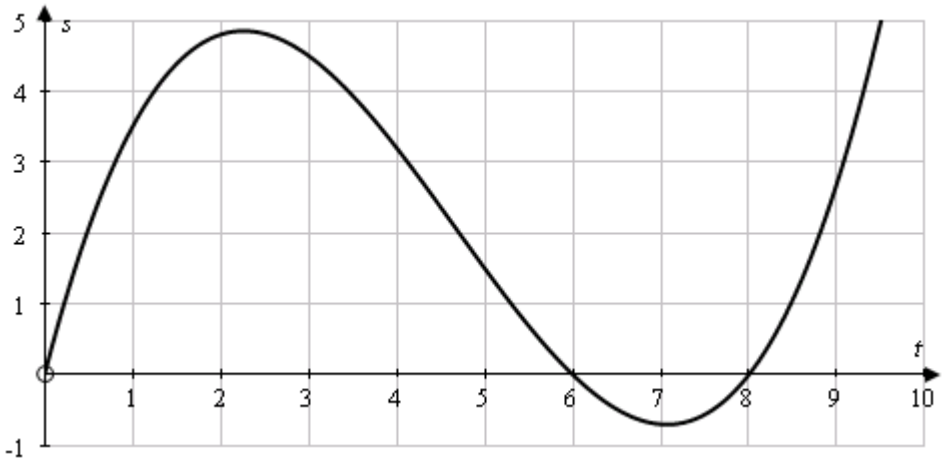
A $\frac{x+2}{24}$

B $\frac{x+3}{15} - \frac{2}{3}$

C $\frac{5-x}{24} + \frac{x-1}{8}$

D $\frac{x}{2} + \frac{1}{6}$

6 A particle moves along a straight line. The graph shows the displacement, s metres, of the particle from the starting point, O, after t seconds.



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

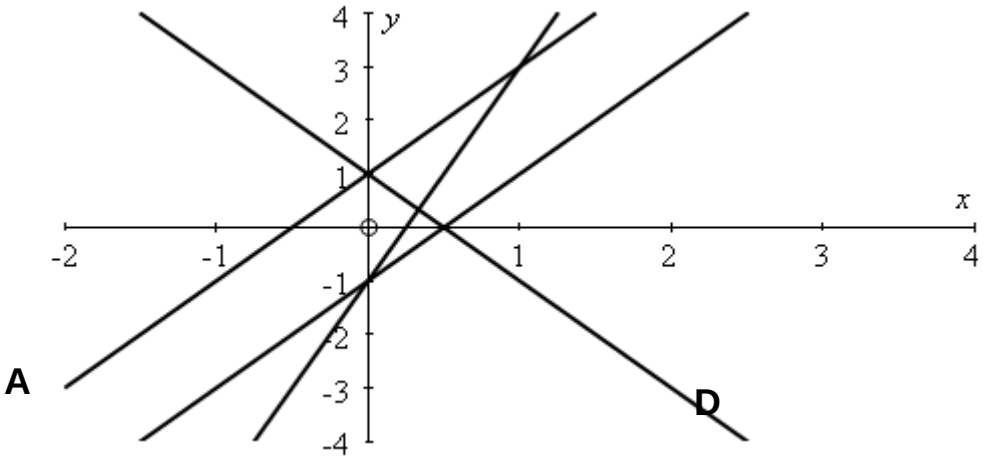
A The displacement when $t = 4$ is approximately 3 metres.

B The particle is stationary when $t = 6$.

C The velocity of the particle when $t = 1$ is approximately 2.5 metres per second.

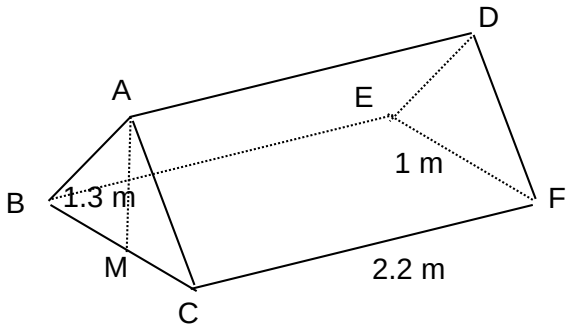
D The least value of s is approximately –0.7 m.

7



Which **one** of the lines **A**, **B**, **C** or **D** represents $y = 2x + 1$?

8 The diagram shows a tent which has the shape of a prism. The two vertical ends, ABC and DEF, are isosceles triangles with equal sides AB, AC, DE and DF.
The base CBEF is a rectangle. BC = EF = 1 metre and CF = BE = AD = 2.2 metres.
M is the mid-point of the side BC and the height of the tent, AM, is 1.3 metres.



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

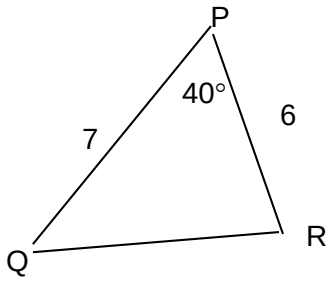
A The angle ABC is 69°, correct to the nearest degree.

B DM = 2.56 m, correct to 2 decimal places.

C The ground area of the tent is 4.84 m^2 .

D The volume of the tent is 1.43 m^3.

9 In the triangle PQR, PQ = 7 cm, PR = 6 cm and angle QPR = 40°.



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

A QR = 4.54 cm, correct to 2 decimal places.

B Angle Q = 58°, correct to the nearest degree.

C Angle R = 82°, correct to the nearest degree.

D P is approximately 6.5 cm from QR.

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

A $(x+1)(x+2) = x^2 + 3x + 2$

B $(x-1)(x-2) = x^2 - 3x + 2$

C $(x-2)(x+2) = x^2 - 4$

D $(x-1)^2 = x^2 - 1$