3.10D Conversions and Units: Fluency and Exam Drill

Total Marks

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 45 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Work out 4300 mm expressed in metres.

(Total for Question 1 is 1 mark)

2 Write 5.4 km as a number of metres.

(Total for Question 2 is 1 mark)

3 Convert 2500 g to kilograms.

(Total for Question 3 is 1 mark)

4 Work out 0.0032 metres written in millimetres.

(Total for Question 4 is 1 mark)

5 Convert 12.5 m^2 into cm^2.

(Total for Question 5 is 2 marks)

6 Work out 0.072 m^3 expressed in litres.

(Total for Question 6 is 2 marks)

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7 Work out 4.8 km/h in metres per second. Give an exact value if possible.

(Total for Question 7 is 2 marks)

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8 A car is travelling at 90 km/h. Work out its speed in metres per second.

(Total for Question 8 is 2 marks)

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9 Convert 0.003 km^2 into square metres (m^2).

(Total for Question 9 is 2 marks)

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10 Work out 12500 mm^3 expressed in cm^3.

(Total for Question 10 is 2 marks)

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11 Convert 72 km/h into centimetres per second (cm/s). Show your working.

(Total for Question 11 is 3 marks)

12 A rectangular pool is 12.5 m long, 4 m wide and 1.6 m deep. Work out the volume of water in the pool in litres.

(Total for Question 12 is 4 marks)

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13 Convert 25000 cm^2 to square metres (m^2).

(Total for Question 13 is 2 marks)

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14 Write 0.45 litres as a number of cubic centimetres (cm^3).

(Total for Question 14 is 2 marks)

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15 A train travels 108 km in 1.5 hours. Work out its average speed in metres per second. Give your answer to the nearest whole number.

(Total for Question 15 is 3 marks)

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16 Convert 250 km^2 into hectares.

(Total for Question 16 is 2 marks)

17 Work out 36000 cm^3 expressed in cubic metres (m^3).

(Total for Question 17 is 2 marks)

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18 A cylindrical water tank has radius 0.75 m and height 1.2 m. Work out the volume of the tank in litres. Give your answer to 1 decimal place. (Use π in your working.)

(Total for Question 18 is 4 marks)

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19 Convert 75 mm^2 into square metres (m^2).

(Total for Question 19 is 2 marks)

Mark scheme · 3.10D Conversions and Units: Fluency and Exam Drill

Question 1

- **B1** 4.3 m cao
- **Answer: 4.3 m**

Question 2

- **B1** 5400 m cao
- **Answer: 5400 m**

Question 3

- **B1** 2.5 kg cao
- **Answer: 2.5 kg**

Question 4

- **B1** 3.2 mm cao
- **Answer: 3.2 mm**

Question 5

- **M1** multiply 12.5 by 10000 (conversion factor m^2 to cm^2) oe
- **A1** 125000 cm^2 cao
- **Answer: 125000 cm^2**

Question 6

- **M1** use 1 m^3 = 1000 litres, multiply 0.072 by 1000 oe
- **A1** 72 L cao
- **Answer: 72 L**

Question 7

- **M1** apply conversion factor 1 km/h = 5/18 m/s (or multiply by 5/18) oe
- **A1** 4/3 m/s or 1.333... m/s cao
- **Answer: 4/3 m/s (1.333... m/s)**

Question 8

- **M1** convert 90 km/h to m/s by multiplying by 5/18 oe
- **A1** 25 m/s cao
- **Answer: 25 m/s**

Question 9

- **M1** use 1 km^2 = 1 000 000 m^2, multiply 0.003 by 1 000 000 oe
- **A1** 3000 m^2 cao
- **Answer: 3000 m^2**

Question 10

- **M1** use 1 cm^3 = 1000 mm^3 or divide by 1000 oe
- **A1** 12.5 cm^3 cao
- **Answer: 12.5 cm^3**

Question 11

- **M1** convert km/h to m/s: 72 x 5/18 = 20 m/s oe
- **M1** convert m/s to cm/s by multiplying by 100 oe
- **A1** 2000 cm/s cao
- **Answer: 2000 cm/s**

Question 12

- **M1** calculate volume in m^3: 12.5 x 4 x 1.6 oe
- **M1** find 80 m^3 result or show the multiplication correctly oe
- **A1** 80000 cao
- **B1** correct unit stated as litres
- **Answer: 80000 L**

Question 13

- **M1** divide by 10000 (conversion cm^2 to m^2) oe
- **A1** 2.5 m^2 cao
- **Answer: 2.5 m^2**

Question 14

- **M1** use 1 L = 1000 cm^3 and multiply 0.45 x 1000 oe
- **A1** 450 cm^3 cao
- **Answer: 450 cm^3**

Question 15

- **M1** find speed in km/h: 108 / 1.5 = 72 km/h oe
- **M1** convert 72 km/h to m/s by multiplying by 5/18 oe
- **A1** 20 m/s cao (nearest whole number)
- **Answer: 20 m/s**

Question 16

- **M1** use 1 km^2 = 100 hectares, multiply 250 x 100 oe
- **A1** 25000 hectares cao
- **Answer: 25000 hectares**

Question 17

- **M1** divide by 1 000 000 (conversion cm^3 to m^3) oe
- **A1** 0.036 m^3 cao
- **Answer: 0.036 m^3**

Question 18

- **M1** use formula V = $\pi r^2 h$ and substitute r = 0.75, h = 1.2 oe
- **M1** calculate r^2 x h = 0.75^2 x 1.2 = 0.675 oe
- **M1** multiply by π to get m^3 then convert to litres by x1000 oe
- **A1** 2120.6 L awrt (0.675 x π x 1000 = 2120.6 L to 1 d.p.)
- **Answer: 2120.6 L**

Question 19

- **M1** use 1 mm^2 = 1e-6 m^2, multiply 75 x 1e-6 oe
- **A1** 0.000075 m^2 cao
- **Answer: 0.000075 m^2**