BOUNDS-SET-2-ms

1	One year ago Ahmed's height was 114 cm. Today his height is 120 cm. Both measurements are correct to the nearest centimetre. Work out the upper bound for the increase in Ahmed's height. *Answer* .... cm [2]

MS-1	7		**2**	**B1** for 120.5 or 113.5 seen

2	The sides of an equilateral triangle are 9.4 cm, correct to the nearest millimetre. Work out the upper bound of the perimeter of this triangle. .... cm [2]

MS-2	28.35 cao		**2**	**B1** for 9.45 seen or **M1** for (9.4 + 0.05) × 3

3	The base of a triangle is 9 cm correct to the nearest cm. The area of this triangle is 40 cm² correct to the nearest 5 cm². Calculate the upper bound for the perpendicular height of this triangle. .... cm [3]

MS-3	10 cao nfww	3	**M2** for $42.5 \times 2 \div 8.5$ allowing one error in the UB or LB provided it is still UB × 2 ÷ LB or **M1** for one of 42.5 or 8.5 seen as bounds

4	**(a)** $V = IR$ In an experiment I and R are both measured correct to 1 decimal place. When $I = 4.0$ and $R = 2.7$, find the **lower** bound for V. .... [2] **(b)** $S = \dfrac{D}{T}$ In an experiment D and T are both measured correct to 2 significant figures. When $D = 7.6$ and $T = 0.23$, find the **upper** bound for S. .... [2]

MS-4	**(a)**	10.4675 cao nfww	2	**B1** for 3.95 **or** 2.65 seen or **M1** for $(4.0 - 0.05) \times (2.7 - 0.05)$
	(b)	34 nfww	2	**B1** for 7.65 **or** 0.225 seen or **M1** for $(7.6 + 0.05) \div (0.23 - 0.005)$

5	Anna walks 31 km at a speed of 5 km/h. Both values are correct to the nearest whole number. Work out the upper bound of the time taken for Anna's walk. .... hours [2]

MS-5	7 cao nfww		2	**B1** for 31 + 0.5 or 5 – 0.5 or 31.5 or 4.5 seen

6	**(a)** The length of the side of a square is 12 cm, correct to the nearest centimetre. Calculate the upper bound for the perimeter of the square. .... cm [2] **(b)** Jo measures the length of a rope and records her measurement correct to the nearest ten centimetres. The upper bound for her measurement is 12.35 m. Write down the measurement she records. .... m [1]

MS-6	(a)	50 cao nfww	2	**B1** 12.5 seen or **M1** for 12 + 0.5 or better
	(b)	12.3	1	

7	An equilateral triangle has sides of length 15 cm, correct to the nearest centimetre. Calculate the upper bound of the perimeter of this triangle. .... cm [1]

| MS-7 | 46.5 | **1** | |

8

$$A = \frac{b \times h}{2}$$

$A = 10$, correct to the nearest whole number.
$h = 4$, correct to the nearest whole number.

Work out the upper bound for the value of b.

.... [3]

| MS-8 | 6 nfww | **3** | **B1** for $10 + 0.5$ or $4 - 0.5$ soi |
| | | | **M1** for $[b =]\ \dfrac{2A}{h}$ soi |

9

A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.

Calculate the upper bound for the area of the rectangle as accurately as possible.

Answer .... cm² [2]

| MS-9 | 50.1225 cao | 2 | **M1** 6.15 and 8.15 seen |

10	A rectangle has sides of length 2.4 cm and 6.4 cm correct to 1 decimal place. Calculate the upper bound for the area of the rectangle as accurately as possible. Answer .... cm² [2]
MS-10	15.8025 cao	2	**M1** 2.45 and 6.45 seen

11	

24 cm

18 cm   18 cm

NOT TO SCALE

24 cm   24 cm

18 cm   18 cm

24 cm   24 cm

18 cm   18 cm

24 cm

Each of the lengths 24 cm and 18 cm is measured correct to the nearest centimetre.
Calculate the upper bound for the perimeter of the shape.

Answer .... cm [3]

MS-11	258 cao	3	**M1** 18.5 or 24.5 seen **M1** 6 × sum of their two upper bounds