Mark schemes

Q1.

445 and 544

B2   445   or   544

or   450   and   540

or   450   and   549

B1   450 or 540 or 545 or 549

B3

[3]

Q2.

79.5   or   80.5   or

1.35   or   1.45   seen

B1

min shelf [75, 80) ÷ max bottle (1.4, 1.5)

M1

79.5 ÷ 1.45

Condone 1.4499   or   better

A1

54

ft answer rounded down if M1A0 awarded

A1ft

[4]

Q3.

285 or 284.$\dot{9}$ or 275

or 12.5 or 13.5 or 13.4$\dot{9}$

or 18.5 or 18.4$\dot{9}$ or 17.5

B1

their 285 as part of trapezium equation

or $\left(\dfrac{\text{their } 12.5 + \text{their } 17.5}{2}\right)h$

oe
their *285 = (280, 290]*
their *12.5 = [12.5, 13)*
their *17.5 = [17.5, 18)*

M1

$285 = \left(\dfrac{12.5 + 17.5}{2}\right)h$

oe

fully correct

A1

19 with no incorrect bounds used

A1

[4]

Q4.

Any one of
155, 165, 7.15, 7.25

B1

$$\frac{155}{7.25} \quad \text{or} \quad \frac{165}{7.15}$$

M1

21.3.... or 21.4

or 23.0….or 23.1

A1

Upper bound is 23.1
Lower bound is 21.4

A1

[4]

Q5.

39.5 or 24.5 or 40.5 or 25.5

or 965 or 975

B1

One correctly evaluated trial using at least one bound

or one correctly evaluated trial giving an answer in range 965 to 975

> *eg 39.5 × 24.5 = 967(.75)*
> *or 39.7 × 24.5 = 972(.65)*
> *or 40.5 × 25.5 = 1032(.75)*
> *Trial values must be in range of bounds*

M1

Ticks cannot tell and 965 seen

and

One correctly evaluated trial giving an answer in range 965 to 970

or

Ticks cannot tell and 975 seen

and

One correctly evaluated trial giving an answer in range 970 to 975

> *eg 967.75*

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eg 972.6

<div align="right">**A1**</div>

Alternative method 1

One correctly evaluated trial giving an answer below 970

(or their value [965, 975])

<div align="right">**M1**</div>

One correctly evaluated trial giving an answer below 970

(or their value [965, 975])

and

One correctly evaluated trial giving an answer above 970

(or their value [965, 975])

<div align="right">**M1dep**</div>

Ticks cannot tell

and

One correctly evaluated trial giving an answer below 970

(or their value [965, 975])

and

One correctly evaluated trial giving an answer above 970

(or their value [965, 975])

> *eg 967.75 and 1032.75*
> *or 967.75 and 1000*
> *or 967.75*