Level 6 Daily Practice

Try these questions and then self mark them. Ask about those questions that you didn't understand. These should take **15** minutes to do the questions.
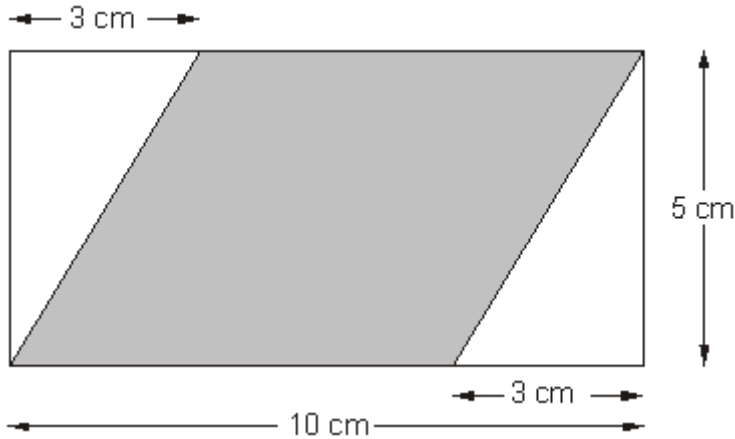
Sheet 5

You should be able to answer all the questions in this booklet in 15 minutes.

Q1. **Parallelogram**

The diagram shows a shaded parallelogram drawn inside a rectangle.

Not drawn accurately

What is the **area** of the shaded parallelogram?

You **must** give the correct unit with your answer.

....
2 marks

Q2. **Relationships**

Write the missing numbers.

$$6x + 2 = 10$$

so $6x + 1$ = ...

1 mark

$$1 - 2y = 10$$

so $(1 - 2y)^2$ = ...

1 mark

Q3.   **Pi**

The value of π correct to 7 decimal places is:

3.1415927

(a)   Write the value of π correct to **4 decimal places**.

1 mark

(b)   Which value below is closest to the value of π?

Put a ring round the correct one.

$$\frac{179}{57} \qquad 3\frac{1}{7} \qquad \left(\frac{16}{9}\right)^2 \qquad \frac{355}{113}$$

1 mark

Q4.   **Fractions**

Work out

$$\frac{1}{4} \; + \; \frac{1}{3} \; =$$

$$\frac{3}{5} \; - \; \frac{1}{15} \; =$$
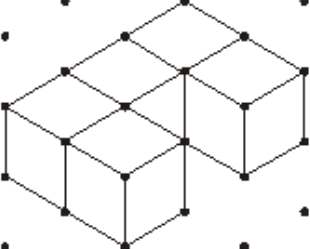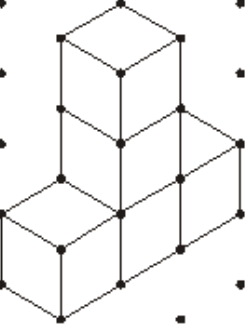
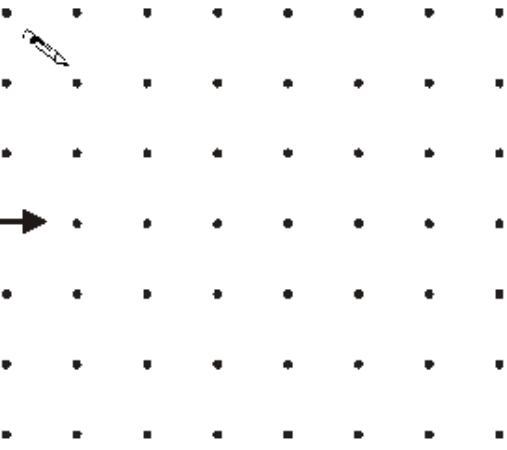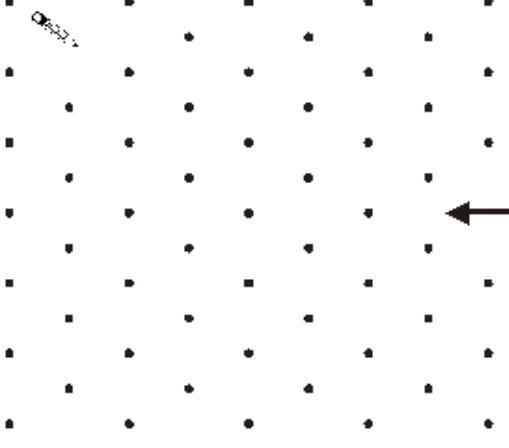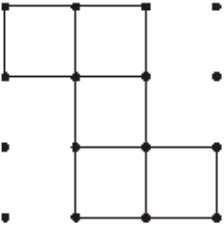3 marks

Q5.   **Five cubes**

Each shape below is made from **five cubes** that are joined together.

Complete the missing diagrams below.

Shape drawn on an isometric grid	View from above of the shape drawn on a square grid

3 marks

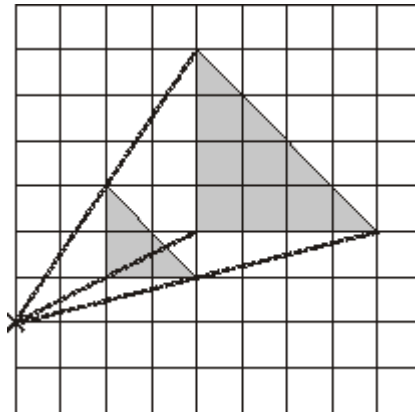**Q6.**   **Enlargement**

Look at the square grids.
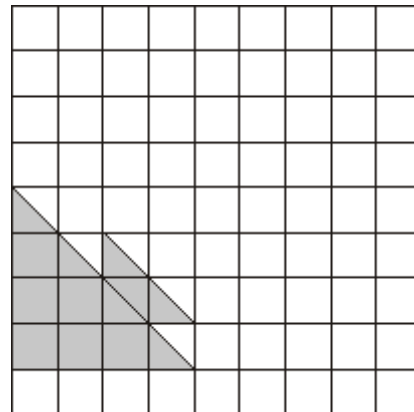
Each diagram shows an enlargement of scale factor 2

The **centre** of this enlargement is marked with a cross.

Where is the centre of enlargement in these diagrams?

Mark each one with a cross.
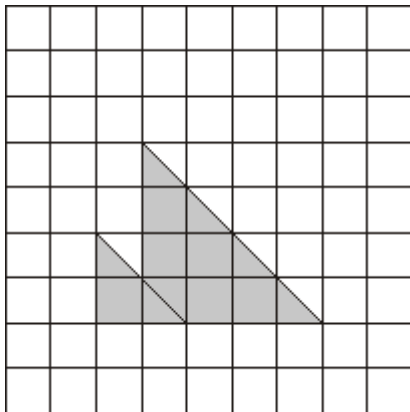
2 marks

Q7.Tomatoes

The graph shows information about,the diameters and heights of a sample ofthree types of tomato.

The dotted lines on the graph can be usedto decide which type of tomato each pointis likely to represent.

height, h

diameter, d

(a)   The diameter of a tomato of **type C** is **11 cm**.

What would you expect its height to be?

.... cm

1 mark

(b)   The diameter of a different tomato is 3.2 cm. Its height is 5.8 cm.

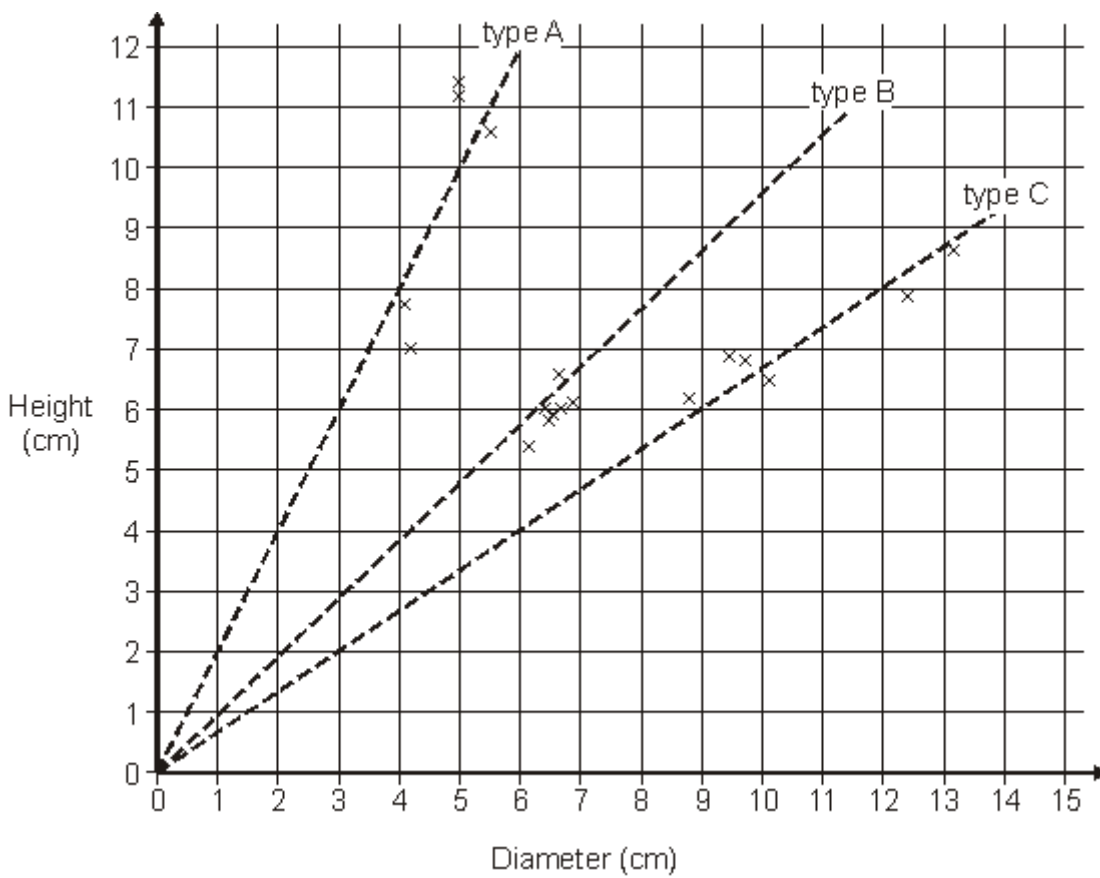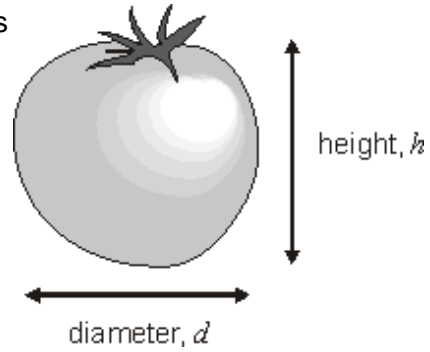Which of the three types of tomato is it most likely to be?

☐ A   ☐ B   ☐ C

Explain your answer.

1 mark

(c)   Which type of tomato is most nearly **spherical** in shape?

☐ A   ☐ B   ☐ C

Explain your answer.

1 mark

(d)   You can find the approximate volume of a tomato by using this formula:

$$V = \frac{1}{6}\pi d^2 h$$

V is the volume,
d is the diameter,
h is the height.

The diameter and the height of a tomato are both **3.5 cm**. What is the approximate volume of this tomato?

.... cm³

2 marks

M1. Gives the correct value with a correct unit

eg

- 35cm^2

2

or Shows the value 35

or

Shows a complete correct method with not more than one computational error and with a correct unit for area shown at least once

eg

- 7 × 5 and cm^2 seen

- (10 – 3) × 5 and cm^2 seen

- 10 × 5 – 3 × 5 and cm^2 seen

- 50 – 7.5 – 7.5 and cm^2 seen

- 4 × 5 + 2 × 1.5 × 5 and cm^2 seen

- 50 – 2 × *6.5 (error)* = 37 and cm^2 seen

    Do not accept: for 1m, necessary brackets omitted
    eg
    - *10 – 3 × 5*

1

[2]

M2.   9

1

100

1

   !   Incomplete processing
   eg, for the first mark
   - *10 – 1*
   eg, for the second mark
   - *10^2*
   Penalise only the first occurrence

[2]

M3.　　(a)　　3.1416

Do not accept: equivalent fractions or decimals

1

(b)　　Indicates $\dfrac{355}{113}$, ie

— — — (—)

1

[2]

M4.　　$\dfrac{7}{12}$ or equivalent

1

For either calculation shows, or implies by a correct answer or otherwise,
a correct method that would enable addition or subtraction of fractions

The most common correct methods:

Show or imply correct fractions with common denominators

eg, for the first calculation

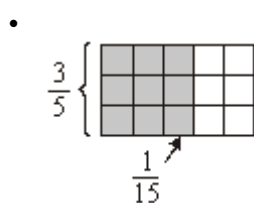- $\dfrac{3}{12}, \dfrac{4}{12}$ seen

- $\dfrac{1}{4} = \dfrac{15}{60}, \dfrac{1}{3} = \dfrac{20}{60}$

- $\dfrac{3\frac{1}{2}}{6}$

eg, for the second calculation

- $\left(\dfrac{3}{5} = \right) \dfrac{9}{15}$ seen with no attempt to change the denominator of the fraction $\dfrac{1}{15}$

- $\dfrac{3}{5} = \dfrac{18}{30}, \dfrac{1}{15} = \dfrac{2}{30}$

- $\dfrac{3}{5}\left\{ \begin{array}{} \end{array} \right.$

$\dfrac{1}{15}$

Convert correctly to decimals or percentages,
even if their value is rounded or truncated
eg, for the first calculation

- 0.25 and 0.33 seen

- 25 and 33.3 seen

eg, for the second calculation

- 0.6 and 0.067 seen

1

$\frac{8}{15}$ or equivalent

> ***Do not accept for the first and third marks, incorrect notation or incorrect further working***
> *eg, for the first mark*
>
> - $\dfrac{3\frac{1}{2}}{6}$

> ! ***Throughout the question, decimal or percentage values rounded or truncated***
>
> *For $\dfrac{7}{12}$, accept 0.583 or better, or percentage equivalents*
>
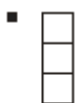> *For $\dfrac{8}{15}$, accept 0.53 or better, or percentage equivalents*
>
> *For $\dfrac{1}{3}$, accept 0.33 or better, or percentage equivalents*
>
> *For $\dfrac{1}{15}$, accept 0.066 or 0.067 or better, or percentage equivalents*

1

[3]

M5. Draws a correct view of the shape from above using the square grid, in either orientation
eg

-

-

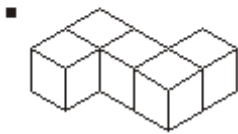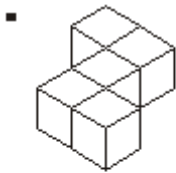> ***Accept when internal lines omitted***

eg

▪

!   Throughout the question, lines not ruled or accurate

Accept provided the pupil's intention is clear

1

Draws a correct view of the shape using the isometric grid, in either correct orientation
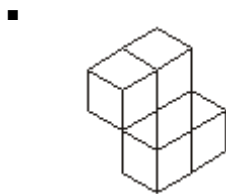eg

▪

▪

2

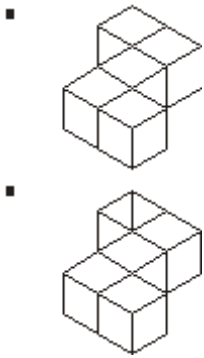*or*   Shows a shape drawn on the isometric grid that takes the given view as a view from one side rather than from above
eg

▪

or

The only error is to omit some external lines or to show some hidden lines
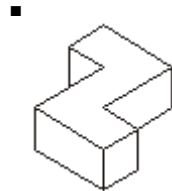eg

■

■

1

*For 2m or 1m, accept when
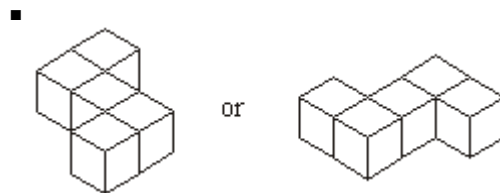internal lines omitted*
eg, for 2m accept

■

! ***Their shape takes the given view as a view
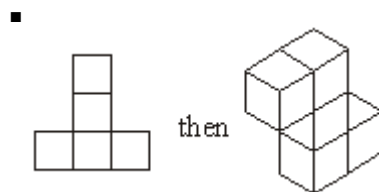from below rather than from above***
*Condone
eg, for 2m accept*

■

or

! ***Their shape takes the given view as a view
from one side rather than from above***
*For 2m, accept only if this error was
penalised for the first mark
eg*

■

then

Mark as 0, 1, 1

!   Hidden lines shown

For 2m, accept provided they are clearly indicated as hidden lines
eg, for 2m accept

■
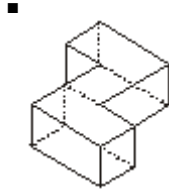
Do not accept a shape with more than 5 cubes drawn

[3]

M6.   Indicates the correct centre of enlargement for the first diagram, ie
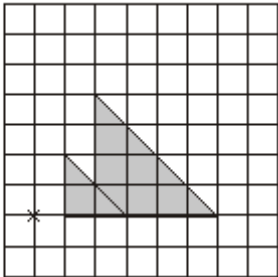
1

Indicates the correct centre of enlargement for the second diagram, ie

1

M7.   (a)   Gives a value between 7.2 and 7.5 inclusive, or equivalent

1

(b)   Indicates A and gives a correct explanation

The most common correct explanations:

Use the trend line for type A
eg

- It is closest to the line for type A

- (3.2, 5.8) is close to (3, 6) which is on line A

- Type A have smaller diameters with bigger heights than the other types

- For A, the height is about double the diameter, and that's roughly true for this one
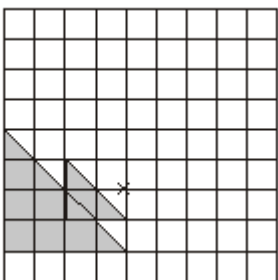
Refer to the diameters of type B being consistently larger than 3.2cm,
or to the heights of type A differing from their diameters
eg

- It's between the lines for A and B, but all the type Bs have diameters between 6 and 7

- It's too far from the type C line so it's A or B, and the A ones don't have similar diameters and heights

> ***Accept minimally acceptable explanation***
> *eg*
> - *It's closest to that line*
> - *The line goes through (3, 6) which is very close*
> - *It is closest to type A [with point correctly plotted on graph]*
> - *Type A have small diameters with big heights*
> - *For A, height is bigger than diameter*
> - *A tomatoes are thin but tall*
>
> ***Do not accept incomplete or incorrect explanation***
> *eg*
> - *It is closest to type A*
> - *It's in the A section*
> - *For A, the height is double the diameter*
> - *The graph shows it*
> - *It is on A's line*
> - *Type A tomatoes have small diameters*
>
> ***Accept minimally acceptable explanation***
> *eg*
> - *B tomatoes have bigger diameters*
> - *A tomatoes have diameters that are not roughly equal to their heights*

Do not accept incomplete explanation
eg
- *It could be A or B but it's more like A*

1

(c)   Indicates B and gives a correct explanation

The most common correct explanations:

Refer to the position of its line on the graph

- B's graph is closest to $y = x$ (or $h = d$)

- The line for B is closest to the line drawn
  [line $h = d$ correctly indicated on graph]

Refer to the dimensions of the tomatoes
eg

- The height and the diameter of a sphere are equal
  and that's also roughly true for B

- The height and diameter of B are both around 6

- A tomatoes are too tall for their diameter, but C tomatoes are too fat
  for their height

  Accept minimally acceptable explanation
  eg
  - *B's line is about 45° through the middle*
  - *It goes through (0, 0) then when d goes
    up by 1, so does h*
  - *The x and y (or h and d) coordinates are
    nearly equal*

  ***Do not accept incomplete or incorrect
  explanation***
  - *B's line is at about 45°*
  - *B's line is a diagonal through the middle*
  - *The graph shows it*
  - *B has h = 2 and d = 2*

  Accept minimally acceptable explanation
  eg
  - *Same height and diameter*
  - *h and d are closest*
  - *The two values are nearly equal*
  - *The others are either too tall and thin or too
    short and wide*

U1

(d)   Gives the value 22.4(...) or 22.5

2

[5]