# Countdown to your final Maths exam ...
# Part 7 (2018)

| | Marks | Actual |  |
|---|---|---|---|
| Q1. Measures | **6** | | |
| Q2. Inequalities (Clip 05) | **5** | | |
| Q3. Speed / Distance / Time (Clip 36) | **3** | | |
| Q4. Compound measures (Clip 37) | **3** | | |
| Q5. Estimating height (Common poorly answered question!) | **3** | | |
| Q6. Speed / Distance / Time (Clip 36) | **5** | | |
| Q7. Frequency diagrams (Clip 29) | **2** | | |
| Q8. Inequalities (Clip 05) | **4** | | |
| 09. Inequalities (Clip 05) | **5** | | |
| Q10. Pythagoras (Clip 39/40) | **5** | | |
| Q11. Time Series (Clip 31) | **3** | | |
| Q12. Inequalities (Clip 05) | **4** | | |
| Q13. Speed / Distance / Time (Clip 36) | **3** | | |
| | **51** | | |

## Questions

**Q1.** Amy is making a shelf unit for her DVDs.

She needs

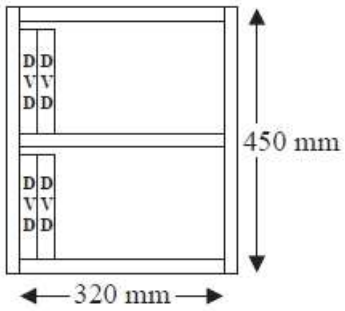
3 pieces of wood of length 32 cm
and 2 pieces of wood of length 45 cm.

Amy has a piece of wood of length 2 metres.
She cuts the 5 pieces of wood she needs from the 2 metre length of wood.

(a) What length of wood does Amy have left from the 2 metre length?

**(3)**

The diagram shows the shelf unit.



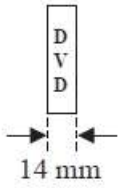




Diagram **NOT** accurately drawn

Amy will put DVDs on the 2 shelves, as shown in the diagram.

Each DVD has a width of 14 mm.

(b) What is the greatest number of DVDs Amy can put on the 2 shelves?

**(3)**

**Q2.** $-2 < n \leq 3$ $n$ is an integer.

(a) Write down all the possible values of $n$.

**(2)**

$3x + 5 > 16$ $x$ is an integer.

(b) Find the smallest value of $x$.

**(3)**

**Q3.** A plane takes 30 seconds to fly a distance of 8 kilometres.

Work out the average speed of the plane, in miles per hour.

**(3)**

**Q4.** Jade makes an orange drink by mixing orange concentrate with water.

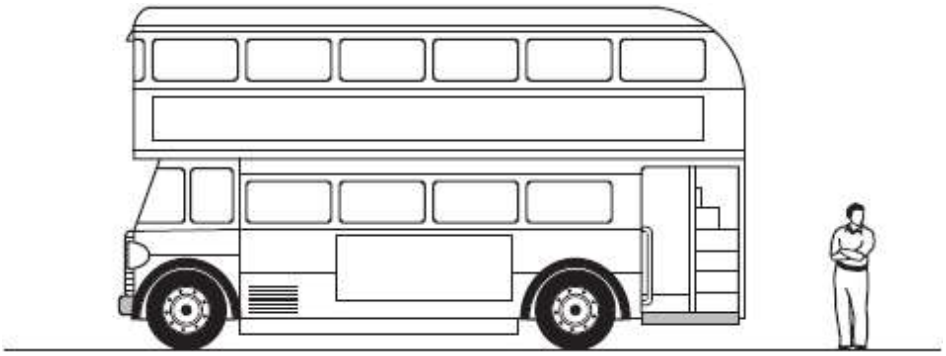
She mixes 15 $cm^3$ of orange concentrate with 250 $cm^3$ of water.

The density of orange concentrate is 1.20 $g/cm^3$.
The density of water is 1.00 $g/cm^3$.

Work out the density of Jade's orange drink.
Give your answer correct to 2 decimal places.

**(3)**

**Q5.**



The picture shows a bus driver standing next to his bus.

The bus driver and the bus are drawn to the same scale.

Work out an estimate for the height of the bus.
You must clearly show how you get your answer.

**(3)**

**Q6.** The world speed record for a train is 360 mph.
It takes Malcolm 6 seconds to drive a train 1 kilometre.

Has the train broken the world speed record?
Use 5 miles = 8 km.

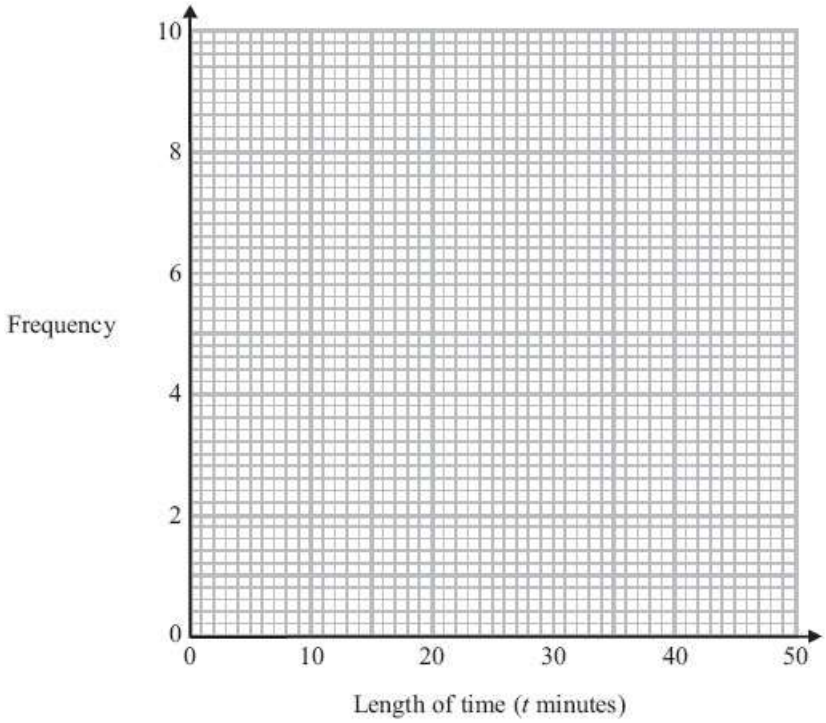
**(5)**

**Q7.** Helen went on 35 flights in a hot air balloon last year.

The table gives some information about the length of time, t minutes, of each flight.

| Length of time ($t$ minutes) | Frequency |
|---|---|
| $0 < t \leqslant 10$ | 6 |
| $10 < t \leqslant 20$ | 9 |
| $20 < t \leqslant 30$ | 8 |
| $30 < t \leqslant 40$ | 7 |
| $40 < t \leqslant 50$ | 5 |

On the grid below, draw a frequency polygon for this information.




**(2)**

**Q8.** $-2 \leq n < 3$ $n$ is an integer.

(a) Write down all the possible values of $n$.

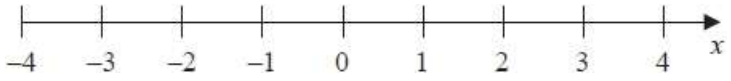
**(2)**

(b) Solve $4 - x < 2x - 5$

**(2)**

**Q9.** (a) $x > -2$

Show this inequality on the number line.



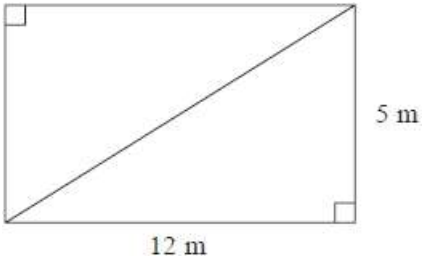

**(2)**

(b) Work out the greatest integer that satisfies the inequality

$$4y - 1 < y + 7$$

**(3)**

**Q10.** This rectangular frame is made from 5 straight pieces of metal.



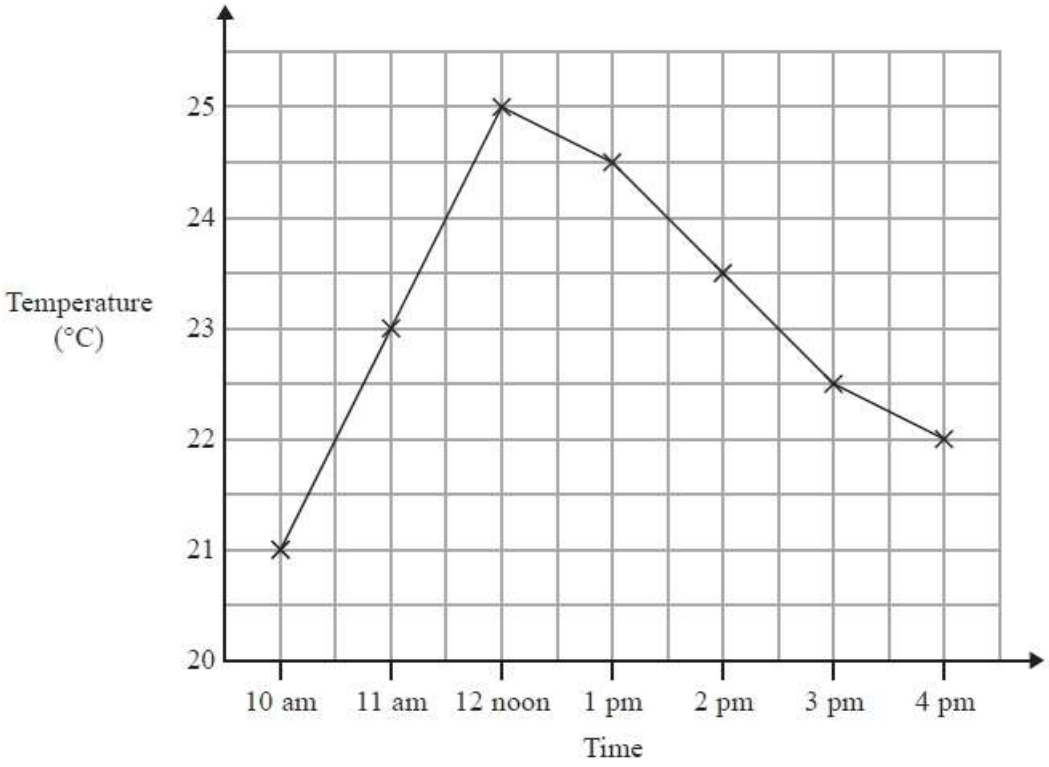

The weight of the metal is 1.5 kg per metre.

Work out the total weight of the metal in the frame.

**(5)**

**Q11.** Beth recorded the temperature, in degrees (°C), inside her greenhouse every hour on one day.

The graph shows information about her results.




(a) Write down the temperature at 11 am.

**(1)**

(b) Write down the highest recorded temperature.

**(1)**

(c) Describe the change in temperature from 12 noon to 4 pm.

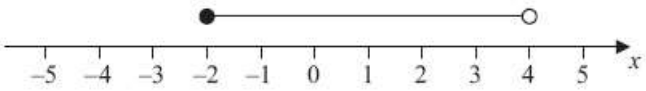
**(1)**

**Q12.** $-4 < n \leq 1$ $n$ is an integer.

(a) Write down all the possible values of $n$.

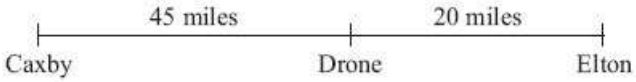
**(2)**

(b) Write down the inequalities represented on the number line.




**(2)**

**Q13.** The distance from Caxby to Drone is 45 miles. The distance from Drone to Elton is 20 miles.




Colin drives from Caxby to Drone. Then he drives from Drone to Elton.

Colin drives from Caxby to Drone at an average speed of 30 mph.

He drives from Drone to Elton at an average speed of 40 mph.

Work out Colin's average speed for the whole journey from Caxby to Elton.

**(3)**