AQA GCSE Mathematic Calculator 2022 Higher Paper 2 Revision Worksheet

7

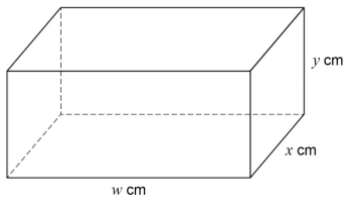
(a) k is a whole number between 40 and 50. The cube root of k is 3, to the nearest whole number. Work out the largest possible value of k. [2 marks]

Answer

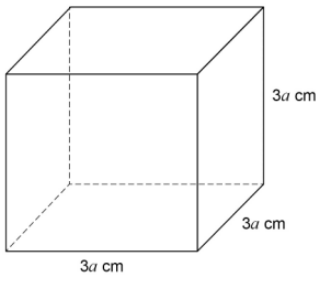
(b) Fay tries to solve $x^2 = 100$. She says, "The only possible value of x is 10" Give a reason why she is not correct. [1 mark]

8

(a) Here is a cuboid. w, x and y are different whole numbers.



(b) The total length of **all** the edges of the cuboid is 80 cm. The volume is **greater** than 200 cm^3.
Work out one possible set of values for w, x and y. [2 marks]



(b) Here is a solid cube. Circle the expression for the total surface area in cm^2 [1 mark]

36a 54a $36a^2$ $54a^2$

9

The 47th triangular number is 1128.

The 48th triangular number is 1176.

Work out the 49th triangular number. [1 mark]

10

The nth terms of two linear sequences, A and B, are added to give the nth term of a new sequence.

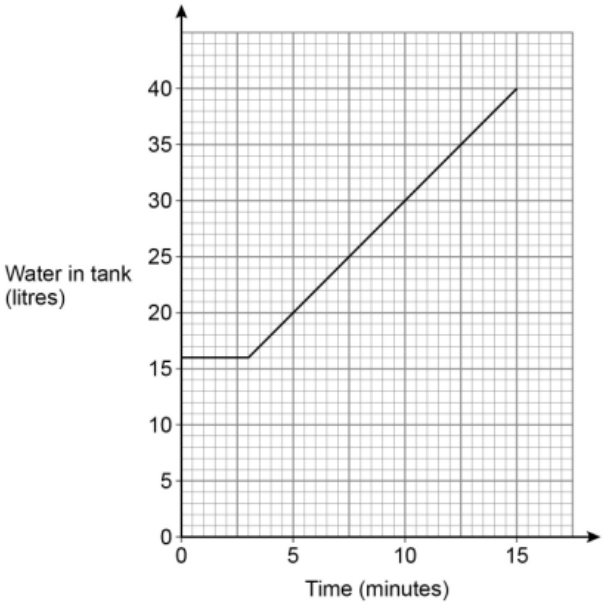
The new sequence starts: 8, 13, 18, 23 The nth term of sequence A is $n + 1$.
Work out the nth term of sequence B. [4 marks]

11

A tank contains 40 litres of water.

(a) Water leaks out of the tank at a rate of 1.2 litres per minute. The leak is stopped after 20 minutes. Show that, when the leak is stopped, the tank contains 16 litres of water. [1 mark]

(b) The tank is refilled with water from a tap. The graph shows the amount of water in the tank after the leak is stopped.



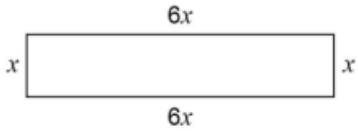
Complete this report by writing a number in each answer space. [3 marks]

_____ minutes after the leak is stopped, the tap starts to refill the tank.

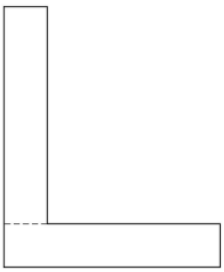
The rate at which the tank refills is _____ litres per minute.

12

The length of this rectangle is 6 times the width.



Two of these rectangles are joined, with no overlap, to make this L-shape.



The perimeter of the L-shape is 98.8 cm.

Work out the value of the perimeter of one of the rectangles. [4 marks]

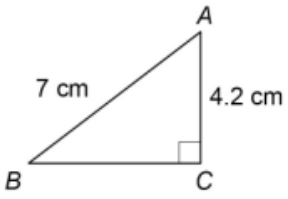
13

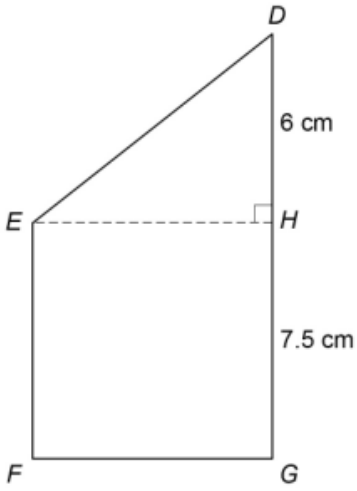
Trapezium *DEFG* is formed by joining

triangle *DEH*

to

rectangle *EFGH*.





ABC is similar to *DEH*.

Work out the area of *DEFG*.

14

Fred bought an apartment for £137,500. He made 8% profit when he sold the apartment. He used all of this profit to pay 40% of the deposit on a house. The deposit was one sixth of the price of the house.

Work out the price of the house. [4 marks]

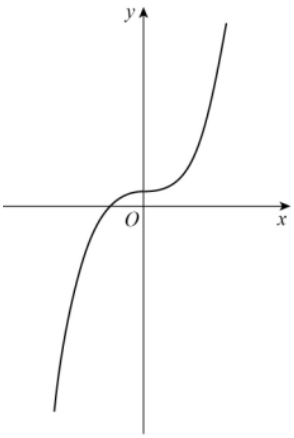
15

Circle the correct statement. [1 mark]

$1\ m^2 = 100\ mm^2$ $1\ cm^2 = 100\ mm^2$ $1\ m^2 = 100\ cm^2$ $1\ km^2 = 100\ m^2$

16

Here is a sketch of a graph.



Circle the possible equation of the graph. [1 mark]

$y = x^2 + 1$ $y = \frac{1}{x} + 1$ $y = x^3 + 1$ $y = 1 - x^2$

17. A sequence of numbers is formed by the iterative process

$$u_{n+1} = \frac{20}{u_n + 3} \quad \text{where} \quad u_1 = 1$$

Work out u_3. Circle your answer. [1 mark]

$\frac{40}{11}$ $\frac{5}{2}$ 7 5