

Problem Solving Past Paper Questions GCSE Edexcel – None Calculator

1.

It would take 120 minutes to fill a swimming pool using water from 5 taps.

(a) How many minutes will it take to fill the pool if only 3 of the taps are used?

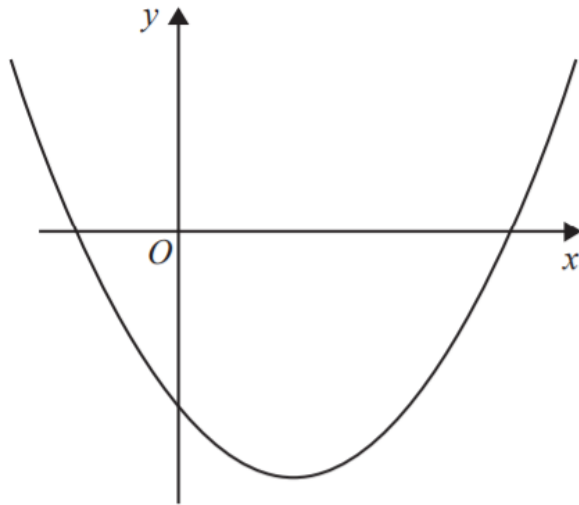
..... minutes
(2)

(b) State one assumption you made in working out your answer to part (a).

.....
.....
(1)

2.

Here is a sketch of a curve.



The equation of the curve is $y = x^2 + ax + b$ where a and b are integers.

The points $(0, -5)$ and $(5, 0)$ lie on the curve.

Find the coordinates of the turning point of the curve.

3.

In a village

the number of houses and the number of flats are in the ratio $7 : 4$
the number of flats and the number of bungalows are in the ratio $8 : 5$

There are 50 bungalows in the village.

How many houses are there in the village?

4.

A cycle race across America is 3069.25 miles in length.

Juan knows his average speed for his previous races is 15.12 miles per hour.

For the next race across America he will cycle for 8 hours per day.

(a) Estimate how many days Juan will take to complete the race.

(3)

Juan trains for the race.

The average speed he can cycle at increases.

It is now 16.27 miles per hour.

(b) How does this affect your answer to part (a)?

5.

Kiaria is 7 years older than Jay.
Martha is twice as old as Kiaria.
The sum of their three ages is 77

Find the ratio of Jay's age to Kiaria's age to Martha's age.

6.

James and Peter cycled along the same 50 km route.
James took $2\frac{1}{2}$ hours to cycle the 50 km.

Peter started to cycle 5 minutes after James started to cycle.
Peter caught up with James when they had both cycled 15 km.

James and Peter both cycled at constant speeds.

Work out Peter's speed.

7.

3 teas and 2 coffees have a total cost of £7.80

5 teas and 4 coffees have a total cost of £14.20

Work out the cost of one tea and the cost of one coffee.

tea £.....

coffee £.....

8.

3 A factory makes 450 pies every day.
The pies are chicken pies or steak pies.

Each day Milo takes a sample of 15 pies to check.

The proportion of the pies in his sample that are chicken is the same as the proportion of the pies made that day that are chicken.

On Monday Milo calculated that he needed exactly 4 chicken pies in his sample.

(a) Work out the total number of chicken pies that were made on Monday.

.....
(2)

On Tuesday, the number of steak pies Milo needs in his sample is 6 correct to the nearest whole number.

Milo takes at random a pie from the 450 pies made on Tuesday.

(b) Work out the lower bound of the probability that the pie is a steak pie.

.....
(2)

9.

There are 10 boys and 20 girls in a class.
The class has a test.

The mean mark for all the class is 60
The mean mark for the girls is 54

Work out the mean mark for the boys.

.....

10.

White shapes and black shapes are used in a game.

Some of the shapes are circles.

All the other shapes are squares.

The ratio of the number of white shapes to the number of black shapes is $3:7$

The ratio of the number of white circles to the number of white squares is $4:5$

The ratio of the number of black circles to the number of black squares is $2:5$

Work out what fraction of all the shapes are circles.