
31- (4MB0-W 2015-Paper 1-Q20)-NUMBER

y varies inversely as the square of x .

When $x = 3$, $y = 28$

Calculate the values of x when $y = 63$

.....
(Total for Question 20 is 4 marks)

32- (4MB0-W 2015-Paper 1-Q9)-NUMBER

Here are the first 4 terms of a sequence

1 -3 9 -27

(i) Write down the next 2 terms of the sequence.

.....
(2)

(ii) Explain how you found your answer.

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

(Total for Question 9 is 3 marks)

(a) Work out the value of $\frac{4.4 \times 10^5}{2.6 \times 10^{-3} - 4.0 \times 10^{-4}}$

.....
(1)

(b) Write your answer to part (a) in standard form.

.....
(2)

(Total for Question 8 is 3 marks)

34- (4MB0-W 2015-Paper 1-Q7)-NUMBER

The weights of two bags are in the ratio 5 : 8

The weight of the heavier bag is 408 grams.

Calculate the weight, in grams, of the other bag.

..... grams

(Total for Question 7 is 2 marks)

35- (4MB0-W 2015-Paper 1-Q3)-NUMBER

Find the Lowest Common Multiple (LCM) of 28, 30 and 45

.....

(Total for Question 3 is 2 marks)

36- (4MB0-W 2015-Paper 1-Q1)-NUMBER

Work out $3\frac{1}{8} \div 4\frac{1}{10}$

Show all your working and give your answer as a fraction in its simplest form.

.....

(Total for Question 1 is 2 marks)

37- (4MB0-S 2015-Paper 1R-Q16)-NUMBER

Wilson Kipsang ran the Berlin marathon in a time of 2 hours 3 minutes and 23 seconds in 2013. The length of the Berlin Marathon is 42.195 km.

Calculate, to 3 significant figures, Wilson's average speed, in m/s, for the Berlin marathon in 2013.

..... m/s

(Total for Question 16 is 4 marks)

38- (4MB0-S 2015-Paper 1R-Q13)-NUMBER

At a pop concert, $\frac{3}{5}$ of the groups had all male singers, $\frac{1}{4}$ of the groups had exactly one female singer and the rest of the groups had more than one female singer.

Find the fraction of the groups that had

(a) at least one female singer,

.....
(1)

(b) more than one female singer.

.....
(2)

(Total for Question 13 is 3 marks)

39- (4MB0-S 2015-Paper 1R-Q12)-NUMBER

Without using a calculator, and showing all your working, evaluate

$$\frac{\sqrt{27} + \sqrt{48}}{\sqrt{75}}$$

.....
(Total for Question 12 is 3 marks)

40- (4MB0-S 2015-Paper 1R-Q11)-NUMBER

A film at a cinema starts at 8:36 pm and is due to finish at 10:18 pm

The film projector broke down $\frac{2}{3}$ of the way through the film.

Work out the time when the projector broke down.

..... pm

(Total for Question 11 is 3 marks)

41- (4MB0-S 2015-Paper 1R-Q10)-NUMBER

Given that $(12 - 2n)$ is the n th term of a sequence, write down

(a) the 5th term,

.....
(1)

(b) the difference between the first term and the third term.

.....
(1)

(Total for Question 10 is 2 marks)

42- (4MB0-S 2015-Paper 1R-Q3)-NUMBER

Express $3.6 \text{ kg} : 75\text{g}$ in the form $m : 1$, where m is an integer.

.....: 1

(Total for Question 3 is 2 marks)

Express $22\frac{1}{2}$ minutes as a percentage of one hour.

..... %

(Total for Question 1 is 2 marks)

Here is a list of numbers

$$(-2)^0 \quad \frac{63}{105} \quad 4 \quad 0.5$$

(a) Write down

- (i) the smallest number in the list,
- (ii) the largest number in the list.

smallest

largest.....

(2)

(b) Calculate the mean of the four numbers in the list.

.....
(2)

(Total for Question 21 is 4 marks)

45- (4MB0-S 2015-Paper 1-Q17)-NUMBER

Given that p and q are positive integers, express

$$\frac{18\sqrt{36} - 6\sqrt{12}}{3\sqrt{24}} \text{ in the form } \sqrt{p} - \sqrt{q}$$

Show all your working.

.....
(Total for Question 17 is 3 marks)

Given that $P = (243)^{-\frac{4}{5}}$

(a) write down the value of the integer m so that $P = \frac{1}{m}$

$m = \dots\dots\dots$
(1)

(b) write P in standard form, giving your answer to 3 significant figures.

$\dots\dots\dots$
(2)

(Total for Question 15 is 3 marks)

47- (4MB0-S 2015-Paper 1-Q11)-NUMBER

In a country, the number of people who are more than 60 years old is 23% of the population.

Of these people who are more than 60 years old, 42% are men.

The population of the country is 50 million.

Calculate, to the nearest million, the number of **women** in this country who are more than 60 years old.

.....million

(Total for Question 11 is 3 marks)

48- (4MB0-S 2015-Paper 1-Q8)-NUMBER

Find the Highest Common Factor (HCF) of 42, 84 and 154

HCF =

(Total for Question 8 is 2 marks)

49- (4MB0-S 2015-Paper 1-Q4)-NUMBER

The n th term of a sequence is given by $3n - 4$

Write down the first three terms of the sequence.

.....,,

(Total for Question 4 is 2 marks)

50- (4MB0-W 2014-Paper 1R-Q23)-NUMBER

A layer of a microchip has a length of 4 mm, a width of 5 mm and a thickness of 1.8×10^{-4} mm.

(a) Calculate the volume, in mm^3 , of one layer of the microchip. Give your answer in standard form.

..... mm^3
(3)

(b) Calculate the number of these microchip layers needed to give a total thickness of 0.9 mm.

.....
(2)

(Total for Question 23 is 5 marks)

(a) Express

(i) $\sqrt{32}$ in the form $a\sqrt{2}$

(ii) $\sqrt{72}$ in the form $b\sqrt{2}$

.....
.....
(2)

(b) Hence show that $(3 + \sqrt{32})(\sqrt{72} - 3)$ can be written in the form $c + d\sqrt{2}$ where c and d are integers to be found.

(3)

(Total for Question 22 is 5 marks)

y varies inversely as the square of x . When $x = 4$, $y = 3$

Find the value of y when $x = 8$

$y =$

(Total for Question 21 is 4 marks)

The cost of fuel for a car is £1.42 per litre.

A motorist fills up the fuel tank of his car completely at a cost of £44.73

(a) Calculate the number of litres of fuel that the motorist put into his car.

..... litres
(2)

Before the motorist started to put fuel into the fuel tank of his car, the tank was 90% empty.

(b) Calculate, in litres, the amount of fuel in the completely full fuel tank of the motorist's car.

..... litres
(2)

(Total for Question 20 is 4 marks)

54- (4MB0-W 2014-Paper 1R-Q12)-NUMBER

From an online website, I purchased an electronic gadget from Singapore. The cost of the gadget in Singapore dollars (SGD) was 82 SGD. The total I paid for the gadget and the postage in British pounds (GBP) was 50 GBP.
The exchange rate was 1 SGD = 0.5036 GBP.

Calculate the cost of the postage in SGD. Give your answer to 2 decimal places.

..... SGD

(Total for Question 12 is 3 marks)

55- (4MB0-W 2014-Paper 1R-Q11)-NUMBER

$$a = 2^{-1}, \quad b = 2^0, \quad c = \left(\frac{1}{2}\right)^{-1}, \quad d = \left(\frac{1}{8}\right)^{\frac{1}{3}}, \quad e = \left(\frac{1}{4}\right)^{-2}, \quad f = 2^2$$

From the list of numbers,

(a) write down the letters of the two equal numbers,

.....
(2)

(b) write down the letter of the largest number.

.....
(1)

(Total for Question 11 is 3 marks)



1



3



6



10

The first four numbers in the sequence of triangle numbers are 1, 3, 6, 10

(a) Write down the 5th number in this sequence.

.....
(1)

(b) Write down the difference between the 100th number and the 99th number in this sequence.

.....
(1)

(Total for Question 6 is 2 marks)

A shopkeeper had a delivery of a box of apples. Of these apples, $\frac{2}{7}$ were bad and could not be sold. The shopkeeper sold all the other 105 apples from the box. Find the total number of apples delivered in the box.

.....
(Total for Question 3 is 2 marks)

(a) Express $5\sqrt{60}$ in the form $m\sqrt{15}$

(1)

(b) Hence show that $\frac{4\sqrt{3} + 5\sqrt{60}}{2\sqrt{3}}$ can be written in the form $a + b\sqrt{b}$, where a and b

are integers. Show all your working and give the values of a and b .

$a = \dots\dots\dots, b = \dots\dots\dots$
(3)

(Total for Question 21 is 4 marks)

59- (4MB0-W 2014-Paper 1-Q20)-NUMBER

F varies inversely as the square of r .

When $r = 2$, $F = 20$

Given that $r > 0$, find the value of r when $F = 5$

$r = \dots\dots\dots$

(Total for Question 20 is 4 marks)

60- (4MB0-W 2014-Paper 1-Q13)-NUMBER

Item	Cost
Bottle of milk	£1.25
Can of beans	39p
Loaf of bread	£1.69

Ann buys 5 bottles of milk, 3 cans of beans and a loaf of bread.

She pays with a £10 note.

Calculate how much change she should receive.

$\dots\dots\dots$

(Total for Question 13 is 3 marks)

