Numbers – 2021 IGCSE 0444

1. June/ 2022/Paper_21/No.1

Write down a prime number between 30 and 40.

..... [1]

2. June/ 2022/Paper_21/No.2

Work out $3^4 - 2^3$.

..... [1]

3. June/ 2022/Paper_21/No.3

Jason starts a run at 10.05 am and finishes at 1.02 pm.

Work out the time Jason takes to complete the run.

..... h ..... min [1]

4. June/ 2022/Paper_21/No.4

Kirsty changes \$384 into pounds (£) when £1 = \$1.20 .

Work out the amount Kirsty receives.

£ ..... [2]

5. June/ 2022/Paper_21/No.5

Write 180 as a product of its prime factors.

..... [2]

6. June/ 2022/Paper_21/No.6

Work out $\frac{3}{7} - \frac{2}{21}$.

Give your answer as a fraction in its simplest form.

..... [2]

7. June/ 2022/Paper_21/No.9

22, 17, 12, 7, 2, ...

(a) Find the next term of the sequence.

..... [1]

(b) Find the *n*th term of the sequence.

..... [2]

8. June/ 2022/Paper_21/No.10

The interior angles of a pentagon are in the ratio $4 : 5 : 5 : 7 : 9$.

Find the size of the largest angle.

..... [3]

9. June/ 2022/Paper_21/No.11

Work out $2 \times 10^{100} - 2 \times 10^{98}$, giving your answer in scientific notation.

..... [2]

10. June/ 2022/Paper_21/No.12

A train passes through a station at a speed of 72 km/h.
The length of the station is 100 m.
The train takes 7 seconds to completely pass through the station.

Work out the length of the train.

..... m [3]

11. June/ 2022/Paper_21/No.13

Simplify $\sqrt{250}+\sqrt{810}$.

..... [2]

12. June/ 2022/Paper_21/No.14

$$4^x = \frac{1}{64}$$

Find the value of x.

$x =$ ..... [1]

13. June/ 2022/Paper_21/No.24

Simplify fully $(216y^{216})^{\frac{2}{3}}$.

..... [2]

14. June/ 2022/Paper_21/No.26

w varies directly as the square root of y.
y varies inversely as x.
When $x = 4$, $y = 16$ and $w = 8$.

Find w in terms of x.

$w =$ ..... [3]

15. June/ 2022/Paper_41/No.1

(a) Geeta buys x apples, $(x+7)$ oranges and $(2x-1)$ bananas.
The total number of pieces of fruit Geeta buys is 30.

(i) Find the number of apples Geeta buys.

..... [3]

(ii) The cost of one apple is 15 cents.
The cost of one orange is 18 cents.
The total cost of all the fruit is \$5.55 .

Find the cost, in cents, of one banana.

..... cents [3]

(b) **(i)** Solve.

$$\frac{3w}{16} - 1 = \frac{1}{2}$$

$w =$ ..... [2]

(ii)

$$\frac{3(2^{-y})}{16} - 1 = \frac{1}{2}$$

Find the value of y.

$y =$ ..... [2]

16. June/ 2022/Paper_41/No.3

(a) Alex, Bobbie and Chris share strawberries in the ratio Alex : Bobbie : Chris = 3 : 2 : 2.
Chris receives 12 strawberries.

Calculate the total number of strawberries shared.

..... [2]

(b) In a sale, a shop reduces all prices by 12%.

(i) Dina buys a book which has an original price of $6.50 .

Calculate how much Dina pays for the book.

$ ..... [2]

(ii) Elu pays $11 for a toy.

Calculate the original price of the toy.

$ ..... [2]

(c) Feri invests some money.
The rate of interest for the first year is 2.5%.
At the end of the second year the overall percentage increase of Feri's investment is 6.6%.

Find the rate of interest for the second year.

..... % [2]

(d) Each day the mass of a radioactive substance decays at a rate of 2% of its mass on the previous day.
The initial mass is 80 g.

(i) Find the mass at the end of 5 days.

..... g [2]

(ii) Find how many **more** whole days, after day 5, it takes for the mass to reduce to less than 67 g.

..... [3]