1. Nov/2020/Paper_13/No.2

Complete this bill.

2 kg potatoes at $2.52 per kg		$ .....
..... kg bananas at $1.50 per kg		$ .....
Total	=	$ 11.04

[3]

2. Nov/2020/Paper_13/No.3

(a) Write 97.4236 correct to 3 decimal places.

..... [1]

(b) Find $\sqrt[3]{-8}$.

..... [1]

3. Nov/2020/Paper_13/No.7

(a) This table shows the temperature, in °C, at midnight and at 3 pm for four cities on the same day.

City	Temperature at midnight (°C)	Temperature at 3 pm (°C)
Sydney	21	28
Oslo	–3	1
Toronto	–18	–8
Seoul	–5	4

Use the table to complete this statement.

The city with the biggest difference in temperature between midnight and 3 pm

is ..... with a difference of .....°C. [2]

(b) The temperature at midnight in Moscow was –11 °C.
At 3 pm the temperature has increased by 5 °C.

Work out the temperature at 3 pm.

..... °C [1]

4. Nov/2020/Paper_13/No.8

Megan changes 20 pounds (£) into dollars when the exchange rate is £1 = $1.20 .

Work out how many dollars she receives.

$ ..... [1]

5. Nov/2020/Paper_13/No.10

Ethan invests $6400 at a rate of 2% per year simple interest.

Work out the total value of his investment at the end of 3 years.

$ ..... [3]

6. Nov/2020/Paper_13/No.15

Share \$60 in the ratio 7 : 5.

\$ ..... , \$ ..... [2]

7. Nov/2020/Paper_13/No.16

By writing each number correct to 1 significant figure, estimate the value of

$$\frac{3.4 \times 13.2}{7.5 - 2.1}.$$

You must show all your working.

..... [2]

8. Nov/2020/Paper_13/No.19

Ramond walks 800 meters in 10 minutes.

Work out Ramond's average speed in kilometers per hour.

..... km/h [3]

9. Nov/2020/Paper_13/No.21

Work out $1\frac{1}{7} \times 2\frac{1}{10}$.

Give your answer as a mixed number in its simplest form.

..... [3]

10. Nov/2020/Paper_23/No.1

Write down the cube number that is greater than 50 but less than 100.

..... [1]

11. Nov/2020/Paper_23/No.2

Find $\sqrt{0.25}$.

..... [1]

12. Nov/2020/Paper_23/No.5

Megan changes 20 pounds (£) into dollars when the exchange rate is £1 = $1.20 .

Work out how many dollars she receives.

$ ..... [1]

13. Nov/2020/Paper_23/No.7

Change 457 000 cm^2 into m^2.

.....m^2 [1]

14. Nov/2020/Paper_23/No.8

$(2\sqrt{2}+3)^2 = a\sqrt{2}+b$

Find the value of a and the value of b.

$a =$ .....

$b =$ ..... [2]

15. Nov/2020/Paper_23/No.13

Brad goes to bed at 21 25.
He is in bed until 07 08 the next day.

Work out the length of time that Brad is in bed.

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

16. Nov/2020/Paper_23/No.14

$N = 2^4 \times 3 \times 7^5$

$PN = K$, where P is an integer and K is a square number.

Find the smallest value of P.

$P =$ ..... [2]

17. Nov/2020/Paper_23/No.17

Adil and Brian are paid the same wage.
Adil is given a 10% pay decrease and his new wage is $180.
Brian is given a 10% pay increase.

Work out Brian's new wage.

$ ..... [3]

18. Nov/2020/Paper_23/No.21

The table shows information about the times, t seconds, taken by each of 100 students to solve a puzzle.

Time (t seconds)	$0 < t \leqslant 20$	$20 < t \leqslant 30$	$30 < t \leqslant 60$
Frequency	20	30	50

(a) Calculate an estimate of the mean time.

..... s [4]

(b) Emmanuel draws a histogram to show this information.
The table shows the heights, in cm, of some of the bars for this histogram.

Complete the table.

Time (t seconds)	$0 < t \leqslant 20$	$20 < t \leqslant 30$	$30 < t \leqslant 60$
Height of bar (cm)	3		

[3]

19. Nov/2020/Paper_33/No.1

(a) Using numbers from 55 to 85, write down

(i) a multiple of 23,

..... [1]

(ii) a factor of 120,

..... [1]

(iii) a common multiple of 8 and 12,

..... [1]

(iv) a number that is **both** square **and** odd,

..... [1]

(v) a number that has exactly 2 factors.

..... [1]

(b) Write 220 as the product of its prime factors.

..... [2]

20. Nov/2020/Paper_33/No.2

(a) A cruise ship travels 2067 km.

(i) Write 2067 in words.

..... [1]

(ii) Write 2067 correct to the nearest hundred.

..... [1]

(b) When full, the cruise ship carries 880 guests and 360 crew.

Write the ratio guests : crew in its simplest form.

..... : ..... [1]

(c) There are 480 cabins on the ship.
On one cruise, 456 of these cabins were used.

Find the percentage of cabins that were used.

.....% [1]

(d) Last year the cost of a cruise was \$4600.
This year the cost of the same cruise is \$4784.

Work out the percentage increase in the cost.

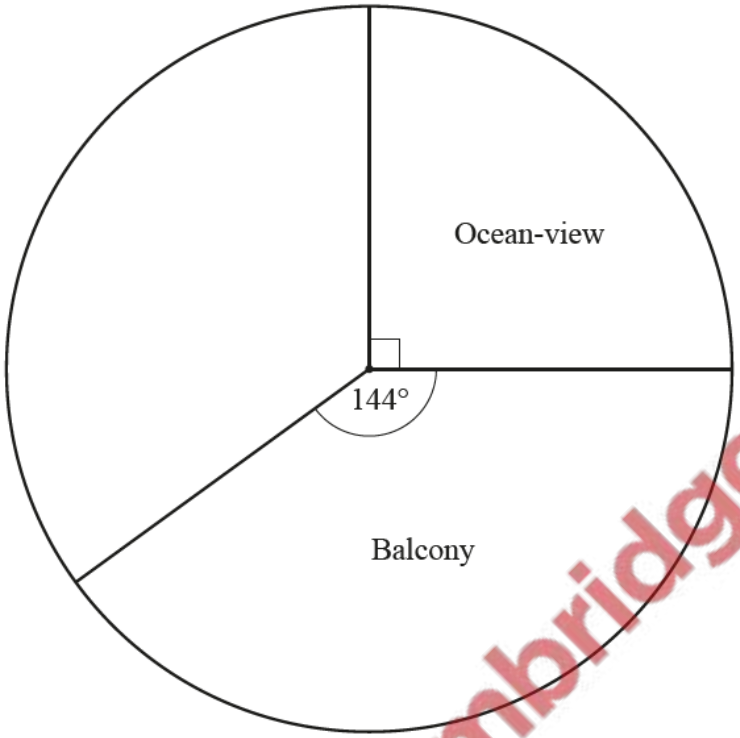
.....% [2]

(e) The cost of building the ship was \$153 000 000.

Write 153 000 000 in scientific notation.

..... [1]

(f) There are 480 cabins on the ship.
There are four types of cabin: Ocean-view, Balcony, Interior, and Suite.
Hannah starts to draw a pie chart to show the numbers of each type of cabin.



(i) Show that there are 120 Ocean-view cabins on the ship.

[1]

(ii) The table shows information about each type of cabin.

Type of cabin	Number of cabins	Sector angle in a pie chart
Ocean-view	120	90°
Balcony	192	144°
Interior	68	
Suite	100	

(a) Complete the table.

[2]

(b) Complete the pie chart. [1]

21. Nov/2020/Paper_43/No.2

(a) The Earth has a surface area of approximately $510\,100\,000\,\text{km}^2$.

(i) Write this surface area in scientific notation.

..... km^2 [1]

(ii) Water covers 70.8% of the Earth's surface.

Work out the area of the Earth's surface covered by water.

..... km^2 [2]

(b) The table shows the surface area of some countries and their estimated population in 2017.

Country	Surface area (km^2)	Estimated population in 2017
Brunei	5.77×10^3	433 100
China	9.60×10^6	1 388 000 000
France	6.41×10^5	67 000 000
Maldives	3.00×10^2	374 600

(i) Find the total surface area of Brunei and the Maldives.

..... km^2 [1]

(ii) The ratio surface area of the Maldives : surface area of China can be written in the form $1 : n$.

Find the value of n.

$n =$ ..... [2]

(iii) Find the surface area of France as a percentage of the surface area of China.

..... % [2]

(iv) Find the population density of the Maldives.
[Population density = population ÷ surface area]

.....people/km^2 [2]

(c) The population of the Earth in 2017 was estimated to be 7.53×10^9.

The population of the Earth in 2000 was estimated to be 6.02×10^9.

(i) Work out the percentage increase in the Earth's estimated population from 2000 to 2017.

..... % [2]

(ii) Assume that the population of the Earth increased exponentially by y% each year for these 17 years.

Find the value of y.

$y =$ ..... [3]

22. June/2020/Paper_11/No.1

Write down the value of the 7 in the number 570296.

..... [1]

23. June/2020/Paper_11/No.3

Write these numbers in order, starting with the smallest.

$\frac{13}{100}$ 5% 0.07 $\frac{6}{25}$

..... < ..... < ..... < ..... [2]

smallest

24. June/2020/Paper_11/No.6

The table shows the temperature, in °C, at midday for 5 days in winter in a town in Greenland.

Monday	Tuesday	Wednesday	Thursday	Friday
−4	−8	−19	−17	−14

(a) Work out the difference between the temperature on Tuesday and the temperature on Thursday.

..... °C [1]

(b) On Friday, the temperature at midnight is 8 °C colder than the temperature at midday.

Find the temperature at midnight.

..... °C [1]

25. June/2020/Paper_11/No.7

(a) Diana flies from London to New York.
Her flight leaves at 1645 and arrives at 1955 local time.
The local time in New York is 5 hours behind the local time in London.

Work out, in hours and minutes, the time the flight takes.

..... h ..... min [2]

(b) Diana changes £200 into dollars.
The exchange rate is £1 = $1.30 .

Work out how many dollars she receives.

$ ..... [1]

(c) The distance between New York and London is 5600 km.
Diana's return flight takes 7 hours.

Work out the average speed, in km/h, for the return flight.

..... km/h [1]

26. June/2020/Paper_11/No.9

Find the highest **odd** number that is a factor of 30 and a factor of 45.

..... [1]

27. June/2020/Paper_11/No.20

One cubic centimeter of a metal has a mass of 11 grams.

Work out the mass, in kilograms, of 1 cubic meter of this metal.

..... kg [2]

28. June/2020/Paper_11/No.21

Work out $\left(2\frac{1}{3}-\frac{7}{8}\right)\times\frac{6}{25}$.

Give your answer as a fraction in its simplest form.

..... [4]

29. June/2020/Paper_21/No.2

Find the highest **odd** number that is a factor of 60 and a factor of 90.

..... [1]

30. June/2020/Paper_21/No.7

$234 = 2 \times 3^2 \times 13$ $\quad$ $1872 = 2^4 \times 3^2 \times 13$ $\quad$ $234 \times 1872 = 438048$

Use this information to write 438 048 as a product of its prime factors.

..... [1]

31. June/2020/Paper_21/No.8

Work out $\left(2\frac{1}{3}-\frac{7}{8}\right)\times\frac{6}{25}$.

Give your answer as a fraction in its simplest form.

..... [4]

32. June/2020/Paper_21/No.16

m varies inversely as the square of $(p-1)$.
When $p = 4, m = 5$.

Find m when $p = 2$.

$m =$ ..... [3]

33. June/2020/Paper_21/No.18

Simplify $\sqrt{250} + \sqrt{40}$.

..... [2]

34. June/2020/Paper_31/No.2

Gabriela designs the seating layout for a new theater.
There are three sections of seats, A, B, and C.

(a) Section A has 152 seats.
Section B has 12.5% more seats than Section A.

Section C has $\frac{3}{8}$ of the number of seats in Section A.

(i) Show that the number of seats in Section B is 171.

[1]

(ii) Show that the total number of seats is 380.

[2]

(b) Write down and simplify the ratio of the number of seats in each section A : B : C.

A : B : C = ... : ..... : ..... [2]

(c) In Section A:

- There are 12 seats in the front row.
- Each row has 2 more seats than the row in front of it.

Work out the number of rows for the 152 seats in Section A.

..... rows [2]

(d) For a concert in the theater, the ticket prices are in the ratio

$$A : B : C = 9 : 7 : 4.$$

A ticket for Section C costs \$6.

(i) Show that a ticket for Section B costs \$10.50 .

[1]

(ii) Find the cost of a ticket for Section A.

\$ ..... [1]

(iii) The table shows the number of tickets sold in each section.

Section	Number of tickets sold
A	120
B	136
C	30

Calculate the total amount received from the ticket sales.

$ ..... [3]

(iv) The concert costs $4500 to organize.

Calculate the amount received from the ticket sales as a percentage of the $4500.

..... % [1]

35. June/2020/Paper_31/No.5

(a) Using the integers from 60 to 75 only, find

(i) a multiple of 17,

..... [1]

(ii) the prime numbers.

..... [2]

(b) Find

(i) the square root of 4489,

..... [1]

(ii) 4^3,

..... [1]

(iii) $\sqrt[3]{274\,625}$,

..... [1]

(iv) $2^{-3} \times 24^2$.

..... [1]

(c) Write 0.0379 correct to 2 significant figures.

..... [1]

(d) Find the least common multiple (LCM) of 8 and 14.

..... [2]

(e) Write 479 000 000 in scientific notation.

..... [1]

(f) George invests $8000 at a rate of 3.6% per year compound interest.

Calculate the value of his investment at the end of 9 years.

$ ..... [2]

36. June/2020/Paper_41/No.2

(a) In 2018, Gretal earned $32 000.

(i) She paid tax of 24% on these earnings.

Work out the amount she paid in tax in 2018.

$ ..... [2]

(ii) In 2019, Gretal's earnings increased by 7%.

Work out her earnings in 2019.

$ ..... [2]

(b) Gretal invests $5000 at a rate of 2% per year compound interest.

Calculate the value of her investment at the end of 3 years.

$ ..... [2]

(c) One month, Gretal spent a total of \$360 on presents.

She spent $\frac{1}{5}$ of this total on presents for her parents.

She spent $\frac{2}{3}$ of the remaining money on presents for her friends.

She spent the rest of the money on presents for her sisters.

Calculate the percentage of the \$360 that she spent on presents for her sisters.

..... % [4]

(d) Arjun earned $36 515 in 2019.
This was an increase of 9% on his earnings in 2018.

Work out his earnings in 2018.

$ ..... [2]

(e) Arjun and Gretal each pay rent.

In 2018, the ratio of the amount each paid in rent was Arjun : Gretal = 5 : 7.
In 2019, the ratio of the amount each paid in rent was Arjun : Gretal = 9 : 13.

Arjun paid the same amount of rent in both 2018 and 2019.
Gretal paid $290 more rent in 2019 than she did in 2018.

Work out the amount Arjun paid in rent in 2019.

$ ..... [4]

37. June/2020/Paper_41/No.9

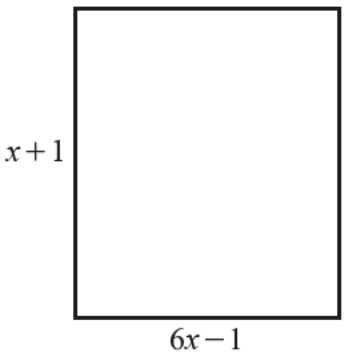
(a) The cost of one apple is a cents and the cost of one pear is p cents.
5 apples and 1 pear cost a total of \$2.21 .
3 apples and 2 pears cost a total of \$1.97 .

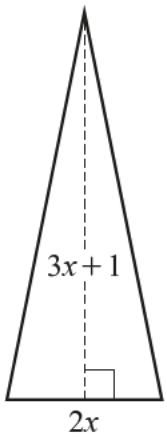
Find the value of a and the value of p.

$a =$ .....

$p =$ ..... [5]

(b)





NOT TO SCALE

The area of the rectangle is double the area of the triangle.

Find the value of x.

$x =$ ..... [4]