Question 1

Work out $7 - 5 \times (6 - 1)$.

Answer ..... [1]

Question 2

The temperature inside an aeroplane is 18.7°C and the temperature outside is 51.3°C lower.
What is the temperature outside?

Answer ..... [1]

Question 3

Write

(a) $\frac{27}{50}$ as a decimal,

Answer (a) ..... [1]

(b) $\frac{83}{1000}$ as a percentage.

Answer (b) .....% [1]

Question 4

(a) Complete $\frac{3}{7} = \frac{\quad}{21}$. [1]

(b) Work out $\frac{3}{7} + \frac{1}{3}$, giving your answer as a fraction.

Answer (b) ..... [1]

Question 5

Maria buys a radio for $50 and sells it later for $40.
Calculate her percentage loss.

Answer ..... [2]

Question 6

In a 1500 m race, Fernando came second in a time of 3 minutes 58.2 seconds.
Eduardo came first, 0.9 seconds ahead of Fernando.
Henri was third, 3.1 seconds behind Fernando.
Write down

(a) Eduardo's time.

Answer (a) ..... min ..... s [1]

(b) Henri's time.

Answer (b) ..... min ..... s [1]

Question 7

91, 162, 239, 357, 468.

Which of the numbers above are

(a) multiples of 3,

Answer (a) ..... [1]

(b) multiples of 7,

Answer (b) ..... [1]

(c) multiples of 21?

Answer (c) ..... [1]

Question 8

Cement, sand, aggregate and water are used to make concrete, in the ratio

Cement : Sand : Aggregate : Water = 2 : 5 : 8 : 1.

(a) Bobbie wants to make 1.2 m^3 of concrete.
How much aggregate will he need?

Answer (a) .....m^3 [1]

(b) Eddie wants to make concrete.
He uses 0.25 m^3 of cement.

(i) How much sand does he need?

Answer (b)(i) .....m^3 [1]

(ii) When water and aggregate have been added, how much concrete will he have?

Answer (b)(ii) .....m^3 [1]

Question 9

A bag contains 5 black beads, 7 white beads and 4 blue beads.

(a) Mohini picks a bead at random. What is the probability that it is

(i) black,

Answer (*a*) (i) ..... [1]

(ii) not black?

Answer (*a*) (ii) ..... [1]

(b) One of the 16 beads is lost. The probability that Mohini picks a black bead is now $\frac{1}{3}$. What can you say about the colour of the lost bead?

Answer (*b*) ..... [1]

Question 10

Solve the equations

(a) $5x = 35$,

Answer (*a*) $x =$ ..... [1]

(b) $\frac{y}{3} = 4$,

Answer (*b*) $y =$ ..... [1]

(c) $2z + 1 = 99$.

Answer (*c*) $z =$ ..... [1]

Question 11

$$y = ap + aq.$$

(a) Calculate the value of y when $a = 3, p = -4$ and $q = -5$.

Answer (*a*) $y =$ ..... [2]

(b) Make p the subject of the formula.

Answer (*b*) $p =$
..... [2]

Question 12

(a) Tiago's father buys a car for \$18 500.
During the first year its value falls by 20%.
Calculate its value at the end of the first year.

Answer (a) \$ ..... [2]

(b) Tiago buys a bicycle for \$240.
During the first year it loses $\frac{13}{40}$ of its value.
Calculate its value at the end of the first year.

Answer (b) \$ ..... [2]

Question 13

Omar buys one present each for Alex, Bukki and Chris. The present for Alex costs twice as much as the present for Chris, but only costs three quarters as much as the present for Bukki.

(a) Write, in its simplest form, the ratio of the costs of the presents for Alex : Bukki : Chris.

Answer (a) ..... : ..... : ..... [2]

(b) Omar spent \$21.25 altogether for the three presents. What was the cost of the present for Bukki?

Answer (b) \$..... [2]

Question 14

A whole number is picked at random from the numbers 1 to 200, inclusive.

(a) What is the probability that it is **more than** 44?
Give your answer as

(i) a fraction in its lowest terms,

Answer (a)(i) ..... [2]

(ii) a decimal.

Answer (a)(ii) ..... [1]

(b) What is the probability that the number is **at least** 180?

Answer (b) ..... [1]

Question 15

(a) Find the next two terms in each of the following sequences.

(i) 1, 4, 7, 10, 13, ...

Answer (a)(i) ....., ... [1]

(ii) 2, 6, 18, 54, ...

Answer (a)(ii) ....., ... [1]

(iii) 1, 3, 4, 7, 11, 18, 29, 47, ...

Answer (a)(iii) ....., ... [1]

(b) The nth term of a sequence is given by the formula

$$\frac{n^2}{n+1}.$$

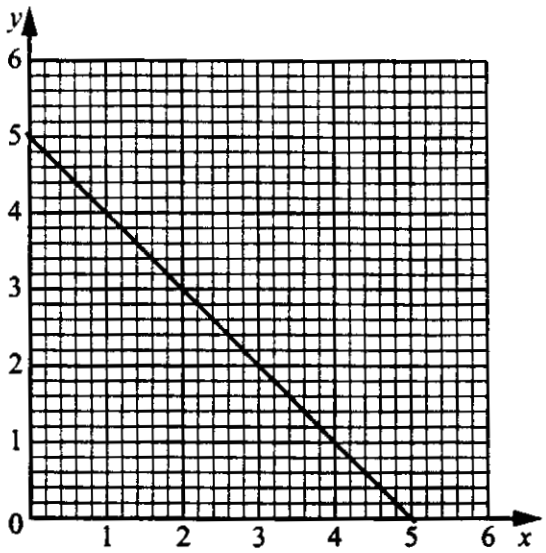
Find **(i)** the 9th term,

Answer (b)(i) ..... [1]

(ii) the 99th term.

Answer (b)(ii) ..... [1]

Question 16



(a) The graph of $x + y = 5$ is shown in the diagram above.
Find the gradient of this line.

Answer (a) ..... [2]

(b) **(i)** Complete the table of values for the equation $y = \frac{1}{2}x + 1$.

x	0	2	4	6
y	1			

[2]

(ii) Draw the graph of $y = \frac{1}{2}x + 1$ on the grid above, for $0 \leqslant x \leqslant 6$. [3]

QUESTION	ANSWER	MARK	
1	-18	1	Correct answer only
2	-32.6	1	Correct answer only
3 (a)	0.54	1	Correct answer only
(b)	8.3	1	Correct answer only
4 (a)	9	1	Correct answer only. If incorrect, award (B1) for $\frac{9}{16}$ seen in (b)
(b)	$\frac{16}{21}$	1	√ award (SC1) for $\frac{(a)}{21}+\frac{7}{21}$ seen and correctly evaluated
5	(-) 20	2	(M1) for $\frac{10}{50}\text{x}100$ **or** $\frac{100}{500}\text{x}100$ **or** $100-\left(\frac{40}{50}\text{x}100\right)$
6 (a)	3 (min) 57.3 (s)	1	Correct answer only
(b)	4 (min) 1.3 (s)	1	Correct answer only
7 (a)	162, 357, 468	1	Correct answer only
(b)	91, 357	1	Correct answer only
(c)	357	1	Correct answer only
8 (a)	0.6	1	Correct answer only
(b)(i)	0.625	1	Correct answer only
(b)(ii)	2.0	1	Correct answer only. Accept 2
9 (a)(i)	$\frac{5}{16}$	1	Condone "in", "out of" if correct answer given. Accept answers given as a decimal or percentage
(a)(ii)	$\frac{11}{16}$	1	√ accept 1 – (a)(i) Accept answers given as a decimal or percentage
(b)	It is not black	1	Accept "it is white or blue"
10 (a)	7	1	Correct answer only
(b)	12	1	Correct answer only
(c)	49	1	Correct answer only
11 (a)	-27	2	(M1) for $3\text{x}(-4)+3\text{x}(-5)$ **or** $-12+(-15)$ **or** $-12-15$
(b)	$\frac{y-aq}{a}$ or $\frac{y}{a}-q$	2	(M1) for $y - aq = ap$ **or** $\frac{y}{a}=p+q$ or equivalent
12 (a)	14800	2	(M1) for 18500 x 0.8 **or** 18500 – (0.2 x 18500)
(b)	162	2	(M1) for 240 x $\frac{27}{40}$ **or** 240 – ($\frac{13}{40}$ x 240)

QUESTION	ANSWER	MARK	
13 (a)	6 : 8 : 3	2	Allow (SC1) if not in simplest form
(b)	10.(00)	2	√ award (M1) for $21.25 \times$ 'his' $\frac{8}{6+8+3}$
14 (a)(i)	$\frac{39}{50}$	2	(B1) for $\frac{156}{200}$ √ award (B1) for cancelling 'his' fraction to its lowest terms
(a)(ii)	0.78	1	√ award (B1) from (a)(i)
(b)	$\frac{21}{200}$	1	
15 (a)(i)	16, 19	1	The mark in each case is for both answers seen and in the right order. Ignore extras. (SC1) if the first one is correct in all three parts
(a)(ii)	162, 486	1	
(a)(iii)	76, 123	1	
(b)(i)	$\frac{81}{10}$ or 8.1 or $8\frac{1}{10}$	1	
(b)(ii)	$\frac{9801}{100}$ or 98.01	1	Allow 98.0 or 98 without wrong working
16 (a)	-1	2	(B1) for $y = -x + 5$ **or** (SC1) for $-\frac{5}{5}$ or equivalent
(b)(i)	2, 3, 4	2	(B1) for any 2 correct
(b)(ii)	Correct line	3	(SC1) for 'his' points plotted correctly (SC1) for a straight line drawn through (0, 1)

TYPES OF MARK

Most of the marks (those without prefixes and 'B' marks) are given for accurate results, drawings or statements.
'M' marks are awarded for any correct method applied to the appropriate numbers.
'B' marks are given for a correct statement or step.
'A' marks are for accurate results or statements but are awarded only if the relevant 'M' marks have been earned.
'SC' marks are awarded in special cases.
The symbol '√' indicates that a previous error is to be 'followed through' i.e. the mark can be gained if the candidate has made no further error in obtaining the relevant result.