IGCSE (9-1) Edexcel Past Papers

MATHEMATICS B

Paper 2, 2R

2020 — 2025

1 - (4MB1/2_Summer_2020_Q5) - *Number*

Tahina travels to work by bus.
Her total bus fare last week was £12.50
This week her total bus fare has increased by 8%

(a) Calculate her total bus fare for this week.

(2)

Tahina works in a kiosk selling hot drinks.
She sells coffee, tea and hot chocolate.

On Monday, Tahina sold a total of 378 hot drinks.
The numbers of cups of coffee, tea and hot chocolate she sold were in the ratios 5 : 3 : 1

(b) Calculate the difference between the number of cups of coffee and the number of cups of hot chocolate that Tahina sold on Monday.

(3)

On Monday, $\frac{3}{14}$ of the number of cups of coffee Tahina sold were sold without milk.

(c) Calculate the number of cups of coffee that Tahina sold without milk.

(2)

The cost of each cup of coffee that Tahina sells from the kiosk is £2.80

Tahina went on holiday to the USA and to Canada.
She bought a cup of coffee in the USA for $3.20

Using an exchange rate of £1 = $1.24

(d) compare the cost of each cup of coffee sold from Tahina's kiosk with the cost of the cup of coffee that Tahina bought in the USA.

(2)

In Canada, Tahina bought a sandwich for 5.28 Canadian dollars.

Using exchange rates of

£1 = $1.24 and 1 Canadian dollar = $0.75

(e) convert 5.28 Canadian dollars to pounds (£)
Give your answer to 2 decimal places.

(3)

2 - (4MB1/2R_Summer_2020_Q1) - *Number*

The manufacturer's price for a *Jinko* car is $\$x$

Ben was given a 7% discount on the manufacturer's price when he bought a *Jinko*.
Ben paid \$23 622 when he bought his *Jinko*.

(a) Calculate the value of x.

(2)

After a year Ben sold his *Jinko* for \$19 880

(b) Calculate the percentage loss, to 3 significant figures, on the price Ben paid for his *Jinko*.

(2)

During the year that Ben owned the *Jinko*, he travelled d km in the car.
The average fuel consumption of the car was 10 km per litre.
The average cost of the fuel he used was \$1.40 per litre.
Other costs for the car in the year came to \$938

The cost per km, including the loss in value, of his *Jinko* to Ben during the year that he owned the car was \$0.40

(c) Calculate the value of d.

(4)

3 - (4MB1/2R_Summer_2020_Q2) - *Number*

(a) Find the Highest Common Factor (HCF) of 75, 90 and 120

(2)

Bhu sets the alarm on her phone to sound at 09 10
Her alarm then sounds every 12 minutes.

Dax sets the alarm on his phone to sound at 09 30
His alarm then sounds every 8 minutes.

Bhu's alarm sounds at 09 10 and Dax's alarm sounds at 09 30

(b) Find the first time after 09 30 that both alarms will sound at the same time.

(2)

4 - (4MB1/2R_Summer_2020_Q8) - *Number*

Jenny ran a road race.

The distance Jenny ran was 5 km, to the nearest 20 m.
Jenny's time for the race was 34 minutes, to the nearest minute.

Colin ran a different road race.

The distance Colin ran was 10 km, to the nearest 200 m.
Colin's time for the race was 1 hour 8 minutes, to the nearest minute.

Colin's average speed for his race is greater than Jenny's average speed for her race.

Calculate the upper bound for the difference, in km/h, between Colin's average speed and Jenny's average speed.
Show your working clearly.

(5)

5 - (4MB1/2_Winter_2020_Q1) - *Number*

$A = 2^3 \times 3^2 \times 5 \times 7$
$B = 2 \times 3^4 \times 5^2 \times 11$

(a) Find the highest common factor (HCF) of A and B.

(1)

(b) Find the lowest common multiple (LCM) of A and B.

(1)

(c) Find the least number that A must be multiplied by to give a square number.

(1)

$C = 3 \times 10^{205} \times 5 \times 10^{205}$

(d) Work out the value of C, giving your answer as a number in standard form.

(2)

ANSWERS

1 – (4MB1/2_Summer_2020_Q5) – *Number*

(a)	12.5×1.08 oe		2	M1
		(£)13.5(0)		A1
(b)	$378 \div (5 + 3 + 1)$ (= 42)		3	M1
	$5 \times \frac{378}{9} - \frac{378}{9}$ oe			M1 or 210 – 42
		168		A1
(c)	$(5 \times$ "42") $\times \frac{3}{14}$ oe eg 3×15		2	M1ft their 42 or their 210 in part(b) ie ("their 210") $\times \frac{3}{14}$
		45		A1
(d)	2.80×1.24 [=(\$)3.47(2)] or $3.20 \div 1.24$ [(£)2.58...]		2	M1 Allow for 3.47… or 2.58… if working not shown. Allow $n \times 2.80 \times 1.24$ and $n \times 3.2$ NB for $n = 210$ the figures are (\$)729.12 and (\$)672 Allow $m \times 3.20 \div 1.24$ and $m \times 2.80$ NB for $m = 210$ the figures are (£)541.94 and (£)588
		The coffee is more expensive from the kiosk		A1 dep oe must have a correct conversion **and** comparison in words. eg the difference is (\$)0.27 or (\$)57.12 the difference is (£)0.22 or (£)46.06 NB the difference must be correct for these 2 statements. coffee is more expensive in UK, coffee is cheaper in the USA etc.
(e)	5.28×0.75 (= 3.96)		3	M1
	$5.28 \times 0.75 \div 1.24$ or "3.96" ÷ 1.24			M1
		(£)3.19		A1 Ignore incorrect currency signs.
				Total 12 marks

2 – (4MB1/2R_Summer_2020_Q1) – *Number*

(a)	$\frac{23622}{0.93}$			M1 Alt $x - 0.07x = 23\,622$ oe
		(\$) 25 400	2	A1
(b)	$\frac{23622 - 19880[=3742]}{23622} \times 100$ **or** $\frac{19880}{23622} \times 100 (=84.158...)$			M1dep
		15.8(%)	2	A1
(c)	$\frac{d}{10} \times 1.4(0)$			M1
	$\frac{d}{10} \times 1.4(0) + 938 + "3742" = 0.4d$ oe			M1 dep ft their 3742 from (b)
	$0.4d - \frac{d}{10} \times 1.4 = 938 + "3742"$ oe			M1 dep collecting like terms on opposite sides
		18 000(km)	4	A1
				Total 8 marks

3 – (4MB1/2R_Summer_2020_Q2) – *Number*

(a)	$75 = 3\times5\times5$ $90 = 2\times3\times3\times5$ $120 = 2\times2\times2\times3\times5$ **or** correct factor trees **or** 3 | 75 90 120 5 | 25 30 40 5 6 8			M1 implied by correct answer
		15	2	A1
(b)	Both could sound together at 9.22 and LCM of 8 and 12 is 24 or 930 938 946 910 922 934 946			M1
		09 46 oe	2	A1
				Total 4 marks

4 – (4MB1/2R_Summer_2020_Q8) – *Number*

5010, 4990, 10100, 9900, 33.5, 34.5, 68.5, 67.5			M1 at least 1 from each row.
Colin $\frac{10100}{67.5}$ or $\frac{10.1}{67.5}$			A1
Jenny $\frac{4990}{34.5}$ or $\frac{4.99}{34.5}$			A1
$\frac{\left(\frac{10100}{67.5}-\frac{4990}{34.5}\right)\times60}{1000}$			M1
	0.2995 (km/h)	5	A1
			Total 5 marks

5 – (4MB1/2_Winter_2020_Q1) – *Number*

(a)		90	1	B1oe Allow $2\times3^2\times5$ ISW
(b)		1 247 400	1	B1oe Allow $2^3\times3^4\times5^2\times7\times11$ ISW
				SC If both answers correct but the wrong way round award (a) B1 (b) B0.
(c)		70	1	B1 oe $2\times5\times7$ ISW
(d)	15×10^{410} or 1.5×10^{n} where n is an integer		2	M1 Allow $3\times5\times10^{410}$
		1.5×10^{411}		A1
				Total 5 marks