

Equations of Straight Lines :

Q1. (2017)

14	$C = 0.6(0)n + 2.5(0)$	B3	oe Must have $C =$ for B3 B2 $C = 0.6n + k$ ($k \neq 0$) or $C = an + 2.5$ ($a \neq 0$) or $0.6n + 2.5$ B1 $0.6n$ or $an + 2.5$ ($a \neq 0$) or $C = 60n + 250$
	Additional Guidance		
	Allow correct fractions eg $\frac{3}{5}$ or $\frac{1}{1.6}$ for 0.6 and/or $\frac{5}{2}$ for 2.5		
	Allow $0.6 \times n$ or $n \times 0.6$ for $0.6n$ eg $C = 0.6 \times n + 2.5$ $n \times 0.6 + 2.5$ $0.6 \times n$		B3 B2 B1
	Penalise by one mark the use of $n0.6$ for $0.6n$ eg $C = n0.6 + 2.5$ $n0.6 + 2.5$ $n0.6$		B2 B1 B0
	Penalise by one mark the use of different letters eg $y = 0.6x + 2.5$ $0.6x + 2.5$ $2p + 2.5$		B2 B1 B0
	Transposing 0.6 and 2.5 scores zero eg $C = 2.5n + 0.6$		B0
	Ignore £ signs eg $£C = £0.6n + £2.5$ or $C = £0.60n + £2.5$		B3
	$C = 1.2n + 2.5$		B2
	$1.2n + 2.5$		B1
	$C = 0.6n + 2.5$ in working with $0.6n + 2.5$ on answer line		B3
	Equivalent formula but C not the subject scores B2 eg $100C = 60n + 250$		B2

Q2. (2019)

15	$y = -\frac{3}{2}x + 3$	B4	<p>oe eg $2y + 3x = 6$ or $y = -1.5x + 3$</p> <p>B3 $-\frac{3}{2}x + 3$</p> <p>or gradient $= -\frac{3}{2}$ stated</p> <p>or equation of line with gradient $-\frac{3}{2}$</p> <p>B2 scales on both axes identified correctly</p> <p>or</p> <p>scale on one axis identified correctly and correct gradient of L for their two scales seen</p> <p>B1 scale on one axis identified correctly</p> <p>or</p> <p>correct gradient of L for their two scales seen</p> <p>SC2 $y = -\frac{3}{4}x + 3$ oe</p> <p>or $y = \frac{3}{2}x + 3$ oe</p> <p>SC1 $-\frac{3}{4}x + 3$ or gradient $= -\frac{3}{4}$ stated</p> <p>or equation of line with gradient $-\frac{3}{4}$</p>
	Additional Guidance		
	<p>Examples of scale on y-axis identified correctly include</p> <p>intersection of $y = x - 1$ with y-axis labelled -1</p> <p>or intersection of line L with y-axis labelled 3</p> <p>or equation of line with y-intercept 3</p>		
	<p>Examples of scale on x-axis identified correctly include</p> <p>intersection of $y = x - 1$ with x-axis labelled 1</p> <p>or intersection of line L with x-axis labelled 2</p>		

Q3. (2021)

- 11 250 trains arrived at a station.
 The number of trains that were late was recorded after every 50 trains.
 The table shows some information about the results.

Total number of trains	50	100	150	200	250
Total number of late trains	16	21	36	38	55
Relative frequency of late trains	0.32	0.21			

(A)

Q	Answer	Mark	Comments
11(a)	Any one of 0.24 or 0.19 or 0.22 in the correct cell	M1	oe fraction, decimal or percentage eg $\frac{36}{150}$ or $\frac{38}{200}$ or $\frac{55}{250}$ implied by any correct point for these three values
	At least two of their relative frequencies plotted accurately	M1dep	$\pm \frac{1}{2}$ square
	(150, 0.24), (200, 0.19) and (250, 0.22) plotted and graph completed with straight lines	A1	$\pm \frac{1}{2}$ square allow dotted or solid lines
	Additional Guidance		
	Mark intention for straightness of lines		
	Ignore any continuation of line after the last point or any other lines drawn on the graph, for example a line of best fit		

(B)

Q	Answer	Mark	Comments
11(b)	0.22	B1ft	oe fraction, decimal or percentage eg $\frac{55}{250}$ ft their relative frequency for 250 trains (> 0 and < 1) given in table or plotted on graph
	Additional Guidance		
	The mark may be awarded for a correct restart or a follow through from their table or a follow through from their graph		
	Ignore attempts to convert a correct relative frequency once seen in (b)		
	NB $\frac{166}{750} = 0.2213\dots$ is incorrect (unless it is given as their relative frequency for 250 trains)		B0ft

Q4. (2021)

Q	Answer	Mark	Comments
13	Alternative method 1		
	$6 \times 3 + c = 19$	M1	oe eg $18 + c = 19$
	$(c =) 19 - 6 \times 3$ or $(c =) 1$	M1dep	oe implied by (0, 1)
	$y = 6x + 1$	A1	SC1 $y = 6x + c \quad c \neq 1$
	Alternative method 2		
	$y - 19 = 6(x - 3)$	M1	oe
	$y - 19 = 6x - 18$	M1dep	oe correct equation with brackets expanded
	$y = 6x + 1$	A1	SC1 $y = 6x + c \quad c \neq 1$
	Additional Guidance		
	Allow $y = 6 \times x + 1$		
	$6x + 1$ on answer line, $y = 6x + 1$ seen in working		M1M1A1
	$6x + 1$ on answer line, $y = 6x + 1$ not seen in working		M1M1A0
	$m = 6, c = 1$ on answer line, $y = 6x + 1$ seen in working		M1M1A1
	$m = 6, c = 1$		M1M1A0
	$y = mx + 1$		M1M1A0
	Allow embedded value for c eg $19 = 6 \times 3 + 1$		M1M1A0
	$y = 6x + c$		SC1
	$y = 6x$		SC1
	$6x + c$ on answer line with $c \neq 1, y = 6x + c$ seen in working		SC1
	$6x + c$ on answer line with $c \neq 1, y = 6x + c$ not seen in working		M0M0A0