Predicted Paper 1MA1: 1F Answer					
1		916(30	5	2	M1 30 – "(16 + 9)" or "30 — 16" — 9 or "30 — 9" — 16 A1 cao
2			–5, –3, 4, 6, 9	1	B1 cao
	b		5.3	1	B1 cao
	c		23/100	1	B1 oe
	d		56%	1	B1 cao
3.			7.84	B1	cao
4.			25	B1	cao
5		$\frac{2}{5}$	B1	cao	
6		Explanation	C1	compares Heron and CIS eg 2 × CIS is 236 (> Heron 230) **or** ½ Heron is 115 (< CIS 118)	The explanation does not need to include details given in the question (given in brackets); comparison can be implied

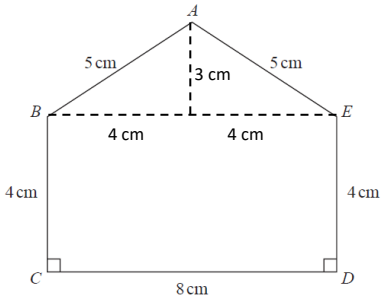
7 (a)	11	B1	cao	
(b)	8	B1	cao	
(c)	$\frac{1}{10}$	B1	oe	Accept 0.1 or 10% as equivalent
8 (a)	(1, 3)	B1	cao	
(b)	(−1, −2) plotted	B1	Point plotted correctly	Accept a point plotted near to (−1,−2) if the intention is clear.
(c)	12	M1	for method to find area of triangle, eg $\frac{6\times4}{2}$ (= 12) **or** $\frac{4\times4}{2} + \frac{2\times4}{2}$ (= 8 + 4) oe **or** $8 + 4 \times \frac{1}{2} +$ "$\frac{1}{3}$"+"$\frac{2}{3}$"+"$\frac{1}{3}$"+"$\frac{2}{3}$"	The full method must be shown. If a method of counting squares is shown it is not sufficient just to show the intention: the relevant parts being added must also be shown.
9 (a)	$\frac{1}{2}+\frac{1}{6}=\frac{4}{6}$ $1-\frac{4}{6}$	$\frac{1}{3}$	3	M1 for correctly writing both fractions to a common denominator A1 for $\frac{2}{3}$ oe

	(b)	$12\frac{1}{2} \div \frac{5}{8}$ $\frac{25}{2} \times \frac{8}{5}$	20	3	B1 ft for $1 - \frac{"2"}{3}$ M1 for $12\frac{1}{2}$ correctly written as an improper fraction M1 (indep) for $\times \frac{8}{5}$ A1 for 20 oe
10	(i) (ii) (iii)		16 cm² 8 cm² 16 cm²	4	B1 cao M1 for $\frac{4 \times 4}{2}$ or "16" $\div 2$ A1 ft for 8 or "(i)" $\div 2$ B1 ft for 16 or "(i)" or "(ii)" $\times 2$
11	(a)(i)		$a + 3b$	2	B2 for $a + 3b$ oe (B1 for a or 1a or 3b)
	(ii)		$2x^2 + x$	2	B2 for $2x^2 + x$ oe (B1 for $2x^2$ or x or $1x$)
	(b)(i)		$8x - 12$	1	B1 oe
	(ii)		$pq - p^3$	1	B1 oe accept $p \times q - p \times p^2$ or better

	(c)	$15p + 10 - 10p + 6$	$5p + 16$	2	B2 for $5p + 16$ oe (B1 for any two terms correct from $15p$, +10, -10p, +6)
12	(a)(i) (ii) (b)	 12×10^2 1.2×10^3	4×10^7 0.000 03 1.2×10^3	2 2	B1 cao B1 cao M1 for 12×10^2 or 1200 ft from "(a)" A1 for 1.2×10^3 ft

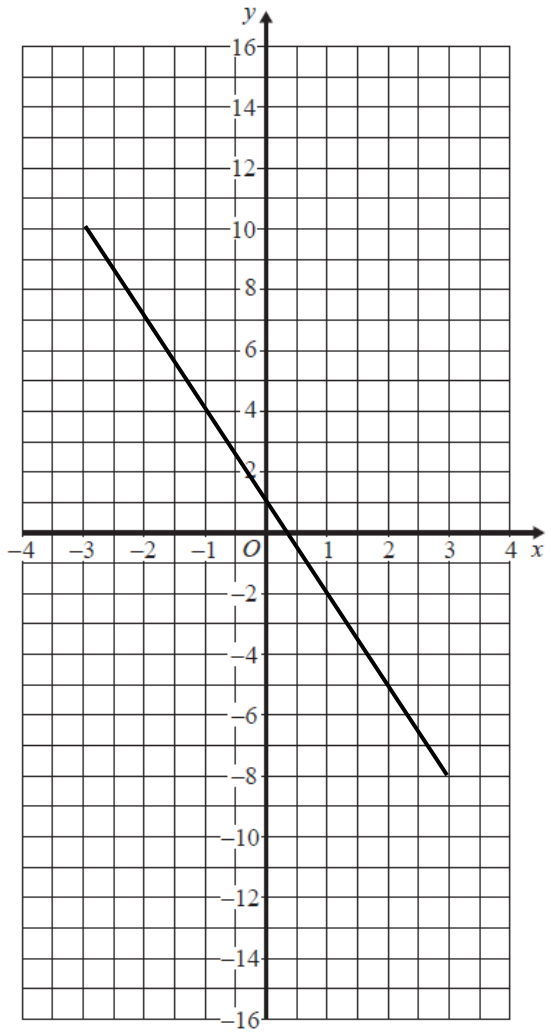
Part	Working or answer an examiner might expect to see	Mark	Notes
13	$\frac{13}{5} - \frac{11}{6}$	M1	This method mark is given for converting both expressions to improper fractions
	$\frac{78}{30} - \frac{55}{30}$	M1	This method mark is given for a correct method to find a common denominator
	$\frac{23}{30}$	A1	This accuracy mark is given for the correct answer (or an equivalent fraction)

14(a)(i)	The starting price **or** a fixed charge	C1	This communication mark is given for correct interpretation
(a)(ii)	The cost per minute **or** how much the price increases every minute	C1	This communication mark is given for correct interpretation
(b)	7.5 ÷ 5 **or**	M1	This method mark is given for an attempt to calculate the gradient, with 2 correct values used or for finding the *y*-intercept

	the *y*-intercept = 0.5		
	$1.5x + 0.5$	M1	This method mark is given for a gradient given as a coefficient of *x* in an equation
	$y = 1.5x + 0.5$	A1	This accuracy mark is given for the fully correct equation for the gradient
15	$\sqrt{5^2 - 4^2} = 3$  	P2	Two process marks are given for dividing the shape into a rectangle and a triangle and finding the perpendicular height of the triangle (One process mark is given for the expression $5^2 - 4^2$ being used)
	$4 \times 8 = 32$ **or** $\frac{1}{2}(3 \times 8) = 12$ or $2 \times \frac{1}{2}(3 \times 4) = 12$	P1	This process mark is given for process to find the area of one of the two shapes formed
	$32 + 12$	P1	This process mark is given for a complete process to find the total area of the shape *ABCDE*
	44 (cm^2)	A1	This accuracy mark is given for the correct answer only
16	32.968	M1 A1	for correct method (condone one error) for digits 32968

			A1	ft (dep M1) for correct placement of decimal point
17	$m^2 + 10m + 21$		M1 A1	for at least 3 terms out of a maximum of 4 correct from expansion
18	152		M1 M1 A1	Start to method *ABD* = 38° **and** *BAD* or *DBC* or *DCB* = 38° *ADB* or *BDC* = 180 – 2 × 38 (= 104) for 152 with working
19	Number of restaurants = 30 ÷ 3 × 8 = 80		P1	This mark is given for a process to find the number of restaurants in the city
	Number of shops = 80 ÷ 2 × 7		P1	This mark is given for a process to find the number of shops in the city
	280		A1	This mark is given for the correct answer only
20	$\frac{6 \times 1000}{250}$ = 24		P1	This mark is given for a process to find out the number of bags of sweets sold
	20 × 0.75 = 15		P1	This mark is given for a process to find the amount of money made from selling the bags of sweets

	$\frac{(15-12)}{10} \times 100$	P1	This mark is given for a process to find percentage profit from selling the sweets
	30	A1	This mark is given for the correct answer only

22		B3	These marks are given for a correct straight line between $x = -3$ and $x = 3$ (B2 is given for a line through at least three correct points) (B1 is given for at least two correct points stated or plotted)

23	(a)	1080		P1 A1	for complete process eg $\frac{18}{50}\times 3000$ cao		
	(b)	assumption and explanation		C1	statement eg sample is representative of the population, so if it is not this could change the number of red notebooks Bill should buy		
24	(a)	NA3c	C	$2\frac{4-9}{12}=1\frac{16-9}{12}$	$1\frac{7}{12}$	3	M1 for using 12 as denominator M1 for decomposing 2 wholes A1 cao
25	(a)(i)	NA3a	C	$72 = 2\times 2\times 2\times 3\times 3$ or $2^3 3^2$ $96 = 2\times 2\times 2\times 2\times 2\times 3$ or $2^5 3$		4	M1 for dividing through by 2 then 3 A1 cao M1 for dividing through by 2 then 3 A1 cao
	(ii)	NA2a	C	$2\times 2\times 2\times 3 =$	24	2	M1 for selecting 2 and 3 as common prime factors A1 cao

	(b)	NA3c	A	$x = 0.454545$ $100x = 45.454545$ Subtract $99x = 45$ $x = \frac{45}{99}$	$\frac{5}{11}$	3	M1 for 0.454545×100 M1 for $99x = 45$ A1 cao

26	(i)	NA5d	C		m^{-3}	2	B1 cao
	(ii)	NA5d	C		h^4		B1 cao
	(b)(i)	NA5b	B	$2x^2 - x - 6$		2	B1 for $2x^2 - 6$ B1 for $-x$
	(ii)	NA5b	B	$(3x - 2)(3x - 2)$ $9x^2 - 12x + 4$		2	B1 for $9x^2 + 4$ B1 for $-12x$
	(c)	NA5k	B	$(x - 5)(x + 2)$	$x = 5$ $x = -2$	3	M1 for factorisation A1 for correct factors B1

27	$15x + 3y = 63$ $x - 3y = 9$	M1	This mark is given for a method to eliminate one variable
	$16x = 72$ $x = 4.5$	M1	This mark is given for a method to find the value of one variable
	$4.5 - 3y = 9$ $y = -1.5$	A1	This mark is given for both correct solutions
28	$\pi \times 10^2 \div 2 = 50\pi$	M1	This mark is given for a method to find the area of the semicircle
	$\pi \times 20^2 \div 4 = 100\pi$	M1	This mark is given for a method to find the area of the quarter circle
	$100\pi - 50\pi = 50\pi$ $20 \times 20 = 400$	M1	This mark is given for a method to find the shaded area and the area of the square
	$\frac{50\pi}{400} = \frac{\pi}{8}$	A1	This mark is given for a correct conclusion supported by correct working.