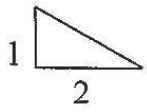


Paper 5525/05					
No	Working	Answer	Mark	Notes	
1	(a)	$75 \div (3+1+1) = 15$ $15 \times 3 = 45$	45	3	M1 for $75 \div (3+1+1)$ M1(dep) for "15" $\times 3$ A1 cao
	(b)	0.8×200	160	2	M1 for 0.8×200 A1 for 160, accept 160 out of 200 SC: B1 for $\frac{160}{200}$ or 160 in 200
2	(a)		$4n - 1$	2	B2 for $4n - 1$ (B1 for $4n + k$ or $kn - 1$, k any integer)
	(b)		Yes	2	M1 for " $4n - 1$ " = 319 A1 for $n = 80$ accept: $4(80) - 1 = 319$; 320 is a multiple of 4, subtract 1 gives 319; if you add 1 and divide by 4 you get a whole number; yes it's the 80 th term.
3	(a)	2.3×20	46	2	M1 for 2.3×20 A1 cao
	(b)	$480 \div 400$	1.2	2	M1 for $480 \div 400$ A1 for 1.2 or equivalent reduced fraction
4			$386 - 420$	3	M1 for 2 of 20, 4, 0.2 A1 for $\frac{80}{0.2}$ or $\frac{84}{0.2}$ or 100×4 or 105×4 or 20×20 or 21×20 A1 for answer in range 386 - 420

No	Working	Answer	Mark	Notes
5 (a)	$3x - 12 = x + 24$ $2x = 36$	18	3	M1 for $3 \times (x - 4) = x + 24$ or $\frac{3(x-4)}{3} = \frac{x+24}{3}$ M1 for $3x - x = 24 + 12$ or $x - \frac{x}{3} = \frac{24}{3} + 4$ oe A1 cao
(b)		$16x^{12}y^4$	2	B2 cao (B1 for $2^4 x^{3 \times 4} y^4$, with one error allowed in powers)
6 (a)		reflection line $y = x$	2	B1 for reflection B1 for line $y = x$ (if B0 then B1 for line $y = x$ drawn on diagram)
(b)	Triangle with vertices at $(-1, 3)$, $(-3, 3)$ and $(-3, 4)$		2	M1 for correct orientation or for a rotation of 90° clockwise about $(-1, 1)$ A1 cao 
7 (a)		$-3, -2, -1, 0, 1$		B2 cao (-1 each error or omission)
(b)	$3x < -6$	$x < -2$		M1 for subtracting $2x$ from both sides, condone sign error in 6 and use of $=, >, \leq, \geq$ A1 for $x < -2$, accept $x < -\frac{6}{3}$

No	Working	Answer	Mark	Notes
8	$\frac{17}{5} - \frac{7}{4}$ or $3 - 1$ and $\frac{2}{5} - \frac{3}{4}$ oe $\frac{68}{20} - \frac{35}{20}$ or $\frac{8}{20} - \frac{15}{20}$ or $2 \frac{29}{20} - \frac{15}{20}$	$1\frac{13}{20}$	3	M1 for correctly decomposing into non mixed numbers M1 for correct method to write all fractions to a common denominator A1 for $\frac{33}{20}$ oe single fraction or mixed number ALT: B1 for 3.4 and 1.75 M1 for attempt to subtract 2 decimal (condone one error) A1 for 1.65 cao
9		Area Length None of these	3	B1 for Area only B1 for Length only B1 for None of these only
10 (a)		0.00057	1	B1cao
(b)		2.1×10^{10}	2	M1 for $(7 \times 3) \times 10^{4+5}$ or better, eg 21×10^9 , 21 000 000 000 A1 cao
11	Eg eqn(1) $\times 3$ and eqn(2) $\times 4$ then add leads to $17x = 51$ Eqn (1) $\times 2$ and eqn(2) $\times 3$ then subtract leads to $-17y = 17$	$x = 3, y = -1$	4	M1 for coefficients of x or y the same followed by correct operation, condone one arithmetical error A1 cao for non-eliminated variable M1 (dep on previous M mark) for correctly substituting their found value A1 cao (need both answers) SC: B1 for one correct answer only if Ms not awarded

No	Working	Answer	Mark	Notes
12 (a)		14	1	B1 cao
(b)		8	1	B1 cao
(c)	$25/100 \times 300$	75	2	M1 for 25% of 300 or $300 \div 4$ or $\frac{1}{4} \times 300$ oe A1 cao
13 (a)		70	2	M1 for $180 - (20+90)$ or angle CDA = 90° seen A1 cao
(b)		20	2	B1 cao B1 for angles in the same segment (are equal) or angles subtended by same arc at circumference
14 (a)		0.6 0.6, 0.4, 0.6	2	B1 for LHS: (0.4), 0.6 B1 for RHS: (0.4), 0.6, 0.4, 0.6
(b)	$0.4 \times 0.4 = 0.16$	0.16	2	M1 for 0.4×0.4 or $\frac{4}{10} \times \frac{4}{10}$ oe A1 for 0.16 or $\frac{4}{25}$ or $\frac{16}{100}$ oe
15 (a)	$n^{\text{th}} \text{ row} = n^2 - (n-1)(n+1)$	$n^2 - (n+1)(n-1)$	1	B1 for $n^2 - (n-1)(n+1)$ oe (condone $n^2 - (n+1)(n-1)$)
(b)	$n^2 - (n-1)(n+1) = n^2 - (n^2 - 1) = 1$	1	2	M1 for $(n-1)(n+1) = n^2 - 1$ A1 cao (SC: B1 for 1 on answer line without working)

No	Working	Answer	Mark	Notes
16 (a)		$y = \frac{1}{2}x + k$	1	B1 for $y = \frac{1}{2}x + k, k \neq 1$
(b)		$y = mx + 1$	1	B1 for $y = mx + 1, m \neq \frac{1}{2}, \text{ or } x = 0$
(c)		$y = -2x + 26$	3	M1 for $m = -\frac{1}{\left(\frac{1}{2}\right)}$ or $\frac{1}{2}m = -1$ M1 for substituting (10,6) into $y = mx + c$ oe A1 for $y = -2x + 26$ oe
17 (a)		390	2	B1cao
(b)		400	1	B1cao
		Correct bar	1	B1 for correct bar
18	$\frac{60}{360} \times 2 \times \pi \times 12$	4π	3	M2 for $\frac{60}{360} \times 2 \times \pi \times 12$, accept numerical π (M1 for $\frac{60}{360} \times k$, where k in terms of π , or $n \times 2 \times \pi \times 12, n < 1$) A1 for 4π or $\frac{a\pi}{b}$ cao, where a and b are correct integers
19 (a)(i)		$1/2$	2	B1cao oe
(ii)		$-1/2$		B1cao oe
(b)(i)	Draws horizontal line $y = -0.4$	114 and 246	4	M1 for use of $y = -0.4$ (may be implied by one correct solution) A1 for both 114 ± 6 and 246 ± 6
(ii)	Draws horizontal line $y = 0.75$	36 and 324		M1 for use of $y = 0.75$ (may be implied by one correct solution) A1 for both 36 ± 6 and 324 ± 6

No	Working	Answer	Mark	Notes
20 (a)	$6x^2 - 4x + 15x - 10$	$6x^2 + 11x - 10$	3	M2 for 3 of 4 terms $6x^2 - 4x + 15x - 10$ correct (M1 for 2 terms correct) A1 for $6x^2 + 11x - 10$
(b)(i)	$(x + 3)^2 - 3^2 - 5$	$p = 3$	3	B1 for $p = 3$
(ii)	$(x + 3)^2 - 14$	$q = -14$		M1 for an attempt to factorise, eg $(x \pm 3)^2 \pm 3^3$ A1 for $q = -14$
21 (a)		8	1	B1 cao
(b)	$\sqrt{8} = \sqrt{4 \times 2} = 2\sqrt{2}$	$2\sqrt{2}$	2	B2 cao (B1 for $\sqrt{4 \times 2}$ or $\sqrt{4} \sqrt{2}$ or $\sqrt{2} \sqrt{2} \sqrt{2}$ or $\sqrt{2^3}$) (Accept 2 on answer line if $2\sqrt{2}$ seen)
(c)	$\sqrt{25 \times 2} = \sqrt{25} \sqrt{2} = 5\sqrt{2}$	$5\sqrt{2}$	2	B2 cao (B1 for $\sqrt{25 \times 2}$ or $\sqrt{25} \sqrt{2}$ or $\sqrt{5} \sqrt{5} \sqrt{2}$) (Accept 5 on answer line if $5\sqrt{2}$ seen)
(d)	$\frac{1 + \sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}(1 + \sqrt{2})}{\sqrt{2} \times \sqrt{2}} = \frac{\sqrt{2} + \sqrt{2}\sqrt{2}}{2} =$ $\frac{\sqrt{2} + 2}{2}$	$\frac{\sqrt{2} + 2}{2}$	2	M1 for $\times \sqrt{2}$ top and bottom A1 cao oe

No	Working	Answer	Mark	Notes
22 (a)(i)		$-3a + b$	4	B1 for $-3a + b$ accept $-2a - a + b$ oe B1 for $-2a + 2b$ accept $-2a + b + b$ oe
(ii)		$-2a + 2b$		M1 for $(\vec{PQ}) = \vec{PA} + \frac{1}{2} \vec{AB}$ or
(iii)	$\vec{PQ} = \vec{PA} + \frac{1}{2} \vec{AB}$ or $\vec{PQ} = \vec{PO} + \vec{OB} + \frac{1}{2} \vec{BA}$ $= a + \frac{1}{2}(-3a + b)$ $= -2a + b + \frac{1}{2}(3a - b)$	$-\frac{1}{2}a + \frac{1}{2}b$		$(\vec{PQ}) = \vec{PO} + \vec{OB} \pm \frac{1}{2} \vec{AB}$ A1 for $-\frac{1}{2}a + \frac{1}{2}b$, accept $a + \frac{b-3a}{2}$ oe
(b)	$\vec{PR} = 4\vec{PQ}$ so PR is 'parallel' to PQ so PQR is a straight line	$\vec{PR} = 4\vec{PQ}$	2	M1 for $PR = 4PQ$ oe or comparing $2(-a + b)$ with $\frac{1}{2}(-a + b)$ A1 for a fully correct proof
(c)		12	1	B1 cao
23	$y^2 = (x - 7)^2$ $x^2 + x^2 - 14x + 49 = 25$ $2x^2 - 14x + 49 = 25$ $2x^2 - 14x + 24 = 0$ $2(x^2 - 7x + 12) = 0$ $2(x - 4)(x - 3) = 0$	$x = 3$ $y = -4$ $x = 4$ $y = -3$	6	M1 $y^2 = (x - 7)^2$ seen or implied M1 for $x^2 + x^2 + / - 14x + 49 = 25$ (oe expanded form) M1 for correct attempt to solve 3 term quadratic A1 for $x = 3, x = 4$ cao M1 (dep. on previous Ms) for sub. one value of x into either equation A1 for $x = 3, y = -4$ and $x = 4, y = -3$ SC : B2 for $(4, -3)$ and $(3, -4)$ if M's not awarded B1 for $(4, -3)$ or for $(3, -4)$ if M's not awarded