

PAPER 5503				
No	Working	Answer	Mark	Notes
1		10.	1	B1 for 10
2	(a)(i) (ii) (b) $5 \times -3 + 1$	$3e + 2f$ $3p^2$ -14	2 2	B1 for $3e + 2f$ B1 for $3p^2$ M1 for $5 \times -3 + 1$ A1 for -14
3	1974 <u>6580</u> 8554	855.4	3	M1 for complete correct method with relative place value correct, condone 1 error in multiplication. A2 cao (A1 for digits 8554 seen or A1 ft for "855.4" dependent on one arithmetic error only)
4	(a) (b)	2 23 9 34 15 2 9 26 17 25 18 60 <u>25</u> 60	3 1	B3 all correct (B2 for 4 or 5 entries correct) (B1 for 2 or 3 entries correct) B1 for $\frac{25}{60}$ or $\frac{5}{12}$ oe
5	(a) $\frac{45}{100} \times 800$ (b) $\frac{176}{800} \times 100$	360 22	2 2	M1 for $\frac{45}{100} \times 800$ oe A1 for 360 M1 for $\frac{176}{800} \times 100$ oe A1 for 22

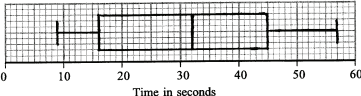
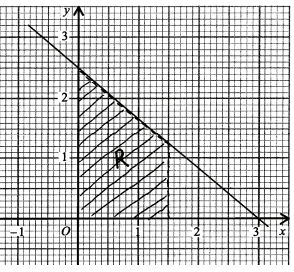
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6	(a)	$\frac{11}{12} - \frac{10}{12}$	$\frac{1}{12}$	2	M1 for correctly writing both fractions to a common denominator A1 for $\frac{1}{12}$ oe
	(b)	$\frac{70 \times 400}{200}$	140	2	B2 for 140 (accept 136) (B1 for sight of any two of 70, 400 or 200)
7	(a)(i)		60	2	B1 for 60
	(ii)				B1 for all angles equal so equilateral triangle oe
	(b)(i)		130	3	B1 for 130
	(ii)				B1 for isosceles triangle oe B1 for angles on a straight line add up to 180°oe
	(c)		64	1	B1 for 64
8	$9 \times 1 + 3 \times 2 + 5 \times 3 + 3 \times 4 (=42)$ “42” \div 20	2.1	3	M1 for $9 \times 1, 3 \times 2, 5 \times 3, 3 \times 4$ or for 42 seen M1 (dep) “42” \div 20 A1 for 2.1 or $2\frac{1}{10}$ or $2\frac{2}{20}$	
9	(a)		09 05	1	B1 for 09 05 oe
	(b)		7	1	B1 for 7
	(c)		10	1	B1 for 10
	(d)	7 km in 20 minutes	21	3	B1 for 20 (minutes) oe or $\times 3$ seen M1 for $\frac{7}{20}$ A1 cao SC: “7” $\times 3$ gets B1 M1

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10	Vertices of new triangle at (2, -2) (2, 6) and (6, -2)	Correct triangle drawn	3	B3 cao (B2 for either correct triangle in wrong translated position or for 2 vertices correct) (B1 for a right-angled triangle with horizontal length 4 or vertical length 8 in the same orientation as shaded triangle) SC B2 for scale factor 3, totally correct
11	$2^2 + 3 =$	7 which is not even	2	B2 (B1 for correctly evaluating $n^2 + 3$ with a prime number value for n .)
12	(a) $360 \div 5$ (b) $8560 \div (10 \times 10)$ (c)(i) Least length = 100.5 (ii) Greatest length = 101.5	72 85.6 100.5 101.5	2 2 2	M1 for $360 \div 5$ oe A1 for 72 M1 for $8560 \div (10 \times 10)$ oe A1 for 85.6 B1 for 100.5 B1 for 101.5 or 101.499 or better
13	$2x + x + 100 + 47 = 360$ $2x + x = 360 - 100 - 47$ $x = 71$ Largest angle = $2x =$	142	4	M1 for $2x + x + 100 + 47 = 360$ or $360 - 147$ or 213 seen M1 (dep) for correctly separating x -terms and non x terms or $\frac{360 - 147}{3}$ A1 for $x = 71$ A1 ft (provided M2 awarded) for "142"
14	(a)(i) (ii) (b) $LCM = 3 \times 13 \times 17 = 3 \times 221$	2.21 0.013 663	2 2	B1 for 2.21 B1 for 0.013 M1 for $3 \times 13 \times 17$ oe A1 for 663

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15		Tick boxes 1,3 & 6	3	B1 for $\frac{\pi abc}{2d}$; B1 for $2a^2$; B1 for $2(c^2 + d^2)$ (-B1 for each additional expression ticked (>3) to a minimum of 0)
16	200×0.2	40	2	M1 for 200×0.2 or $\frac{40}{200}$ seen A1 for 40
17 (a)	eg $\begin{array}{r} 2 \overline{)108} \\ 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \end{array}$	$2^2 \times 3^3$	3	M2 for full systematic method of at least 4 divisions by prime numbers or factor trees; condone 1 calculation error (M1 for 108 written as a correct product(s) with only one non-prime or equivalent division or a full process with 2 calculation errors.) A1 for $2^2 \times 3^3$ (accept $2 \times 2 \times 3 \times 3 \times 3$) B1 for 12
(b)		12	1	
18	Perpendicular from P to intersecting arcs (within tramlines); perpendicular at least 2cm long		2	M1 relevant pair of arcs crossing within tramlines A1 SC M1 AO for a full construction of a perpendicular to AB not passing through P.
19	15×10	150 cm^3 .	3	M1 for 15×10 A1 for 150 B1 for cm^3 .

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20		$y = 2x + 6$	2	B2 for $y = 2x + 6$ (B1 for $y = 2x + k$, $k \neq 1$ or for $y = mx + 6$, $m \neq 0$ or for $2x + 6$)
21	$6\frac{2}{5} = \frac{32}{5}$ <p>Area of triangle = $\frac{1}{2} \times \frac{5}{8} \times 6\frac{2}{5}$ (=2)</p> <p>Length of a side of sq. = $\sqrt{18 \times 2}$ (=6)</p> <p>Perimeter of square = 4×6</p>	24	5	B1 for $6\frac{2}{5} = \frac{32}{5}$ oe or $3\frac{1}{5} = \frac{16}{5}$ or $\frac{30}{8} + \frac{2}{8}$ oe (or implied by area of triangle=2) M1 for $\frac{1}{2} \times \frac{5}{8} \times 6\frac{2}{5}$ oe M1 for area of square = $18 \times$ product of two lengths A1 for $\sqrt{18 \times 2}$ A1 for 24
22	(a)	$x(x - 3)$	2	B2 for $x(x - 3)$ (B1 for $x(\dots\dots)$)
	(b)	k^3	1	B1 for k^3 .
	(c)(i)	$4x + 20 + 3x - 21$	4	M1 for three of 4 terms $4x + 20 + 3x - 21$ (or better) A1 for $7x - 1$
	(ii)	$x^2 + 3yx + 2xy + 6y^2$		M1 for three of 4 terms $x^2 + 3yx + 2xy + 6y^2$ A1 for $x^2 + 5xy + 6y^2$
	(d)	$(p + q)(p + q + 5)$	1	B1 for $(p + q)(p + q + 5)$

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23 (a) (b) (c)	 <p>Median(B) > Median(G); on average boys take longer IQR(B) > IQR(G); times for boys have a greater spread</p>	32	1 3 2	B1 for 32 (accept 31.5 to 33.5 inclusive) B1 for ends of whiskers at 9 and 57, (with a box) B1 for ends of box at 16 and 45 (± 0.5) B1 for median marked at 32 or a complete box and whisker diagram drawn with a median inside the box B1 eg for comparison of medians B1 eg for comparison of (interquartile) ranges
24 (a) (b) (c)(i) (ii)	<p>$6y = 15 - 5x$</p> <p>$6k + 5(-21) = 15$</p> 	<p>$y = \frac{15 - 5x}{6}$</p> <p>20</p> <p>Region R indicated</p> <p>(1,1)</p>	2 2 3	<p>M1 for either $6y = 15 - 5x$ or $-6y = 5x - 15$ or for $\frac{5x}{6} + y = \frac{15}{6}$ or a correct ft on sign error to $y = \frac{15 - 5x}{6}$ oe</p> <p>A1 for $k = 20$</p> <p>B2 correct region shaded (accept unshaded if R clear) (B1 shaded or R region satisfies 3 of the 4 given inequalities with same boundaries)</p> <p>B1 for (1,1)</p>

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25	(a)	60	1	B1 for 60
	(b)	35	2	B1 for $BDC = 25$ [Award the mark for equivalent approaches] B1 ft for (a) – 25
	(c)		1	B1 for full valid justification