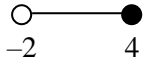


Inequalities

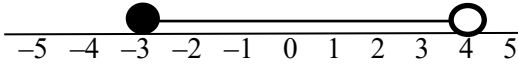
June 2022 Paper 2

Question	Answer	Mark	Mark scheme	Additional guidance
14 (i)	>	B1	cao	
(ii)	=	B1	cao	

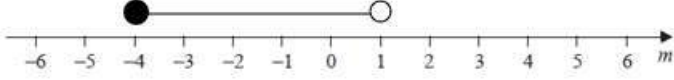
November 2024 Paper 2

Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)	$5w(3w - 1)$	B2 (B1	for $5w(3w - 1)$ for $5(3w^2 - w)$ or $w(15w - 5)$ or $5w(aw - b)$ where a and b are integers or $(3w - 1)$ as a factor	
(b)		M1 A1	for drawing a line from -2 to 4 or for an open circle at -2 or for a closed circle at 4 cao	

November 2021 Paper 2

Question	Answer	Mark	Mark scheme	Additional guidance
21 (a)	$x > -1$	B1	cao	
21 (b)	Diagram drawn	C2 (C1	for a fully correct diagram, eg  for drawing a line from -3 to 4 or (indep) for an open circle at 4 or (indep) for a closed circle at -3)	Condone arrow heads or line ending to denote the 'end' of the line

June 2023 Paper 2

Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	4	B1	cao	
(b)	correct diagram	C2	for a fully correct diagram, eg 	
		(C1)	for drawing a line from -4 to 1 or (indep) for an open circle at 1 or (indep) for a closed circle at -4	Condone arrow heads or line ending to denote the 'end' of the line
(c)	$g < 25$	M1	for a correct first step, eg adding 4 to both sides, eg $\frac{2}{5}g < 6 + 4$ or multiplying throughout by 5, eg $2g - 4 \times 5 < 6 \times 5$ or dividing throughout by 2, eg $\frac{1}{5}g - 4 \div 2 < 6 \div 2$	Allow use of any inequality or as an equation for both method marks $\frac{2}{5}g < 10$ $2g - 20 < 30$ $\frac{g}{5} - 2 < 3$
		M1	for a correct second step, eg $2g < "10" \times 5$ or $\frac{1}{5}g < "10" \div 2$ or $2g < "30" + "20"$ or $g - "20" \div 2 < "30" \div 2$ or $\frac{g}{5} < "3" + "2"$ or $g - "2" \times 5 < "3" \times 5$ or showing 25 as the critical value	$2g < 50$ $\frac{g}{5} < 5$ $g - 10 < 15$
		A1	for $g < 25$ oe	Can be written as $g = 25$

June 2022 Paper 1

Question	Answer	Mark	Mark scheme	Additional guidance
23	$x < 5$	M1 A1	for adding 27 to both sides or dividing throughout by 7 (in an inequality or an equation) as a first step or showing 5 as the critical value cao	Can be written as $x = 5$

June 2020 Paper 3

Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	n^8	B1	cao	
(b)	cd^3	M1	for partial simplification, eg c or d^3	May be seen as simplification in original fraction
		A1	for cd^3	Accept c^1d^3
(c)	$x > \frac{14}{5}$	M1	for $5x > 14$ or $5x = 14$ or critical value, $\frac{14}{5}$ oe	Must see carried out correctly, ie at least $5x > 7 \times 2$ not just intention seen. Allow other signs for this mark.
		A1	$x > \frac{14}{5}$ or $x > 2\frac{4}{5}$ or $x > 2.8$	

November 2022 Paper 1

Question	Answer	Mark	Mark scheme	Additional guidance
26 (a)	$x > 6$	M1	for a correct first step, eg subtracts 3 from both sides or multiplies all terms by 2	<p>Could be seen as an equation for both method marks, eg $5x + 6 = 36$ or $5x = 30$</p> <p>First 2 marks may be awarded for critical value of 6, eg $x = 6$</p>
		M1	(dep M1) for a correct second step, eg multiplies both sides by 2 or divides both sides by 5 or gives the critical value, 6.	
		A1	for $x > 6$	
(b)	$(x + 9)(x + 1)$	M1	for $(x \pm 1)(x \pm 9)$ or for $(x + a)(x + b)$ where product of a and $b = 9$, eg $(x + 3)(x + 3)$ or $(x - 3)(x - 3)$ or the sum of a and $b = 10$, eg $(x + 5)(x + 5)$ or $(x + 6)(x + 4)$	
		A1	for $(x + 9)(x + 1)$	

June 2024 Paper 1

Question	Answer	Mark	Mark scheme	Additional guidance
28	$x \leq -4$	M1	<p>for a correct first step working with an equation or inequality</p> <p>eg $x + 11 - 11 \leq 5 - \frac{1}{2}x - 11$</p> <p>or $x + 11 + \frac{1}{2}x \leq 5 - \frac{1}{2}x + \frac{1}{2}x$</p> <p>or $2 \times x + 2 \times 11 \leq 2 \times 5 - 2 \times \frac{1}{2}x$</p>	<p>Can work with an equation or incorrect inequality symbol for both M marks</p> <p>Allow for subtracting 5 from both sides or subtracting x from both sides.</p> <p>For M marks step must be carried out not just intention shown.</p> <p>For example, if you see</p> $\begin{array}{rcl} x + 11 & \leq & 5 - \frac{1}{2}x \\ -11 & & -11 \end{array}$ <p>Award M1 for:</p> $x \leq k - \frac{1}{2}x$ <p>with $k \neq 5, k \neq 16$</p> <p>or indicating $+\frac{1}{2}x$ reaching</p> $kx + 11 \leq 5$ <p>with $k \neq \frac{1}{2}, k \neq 1$</p> <p>or indicating multiplying by 2 obtaining an equation or inequality with three of four terms correct and no term unchanged.</p> <p>Award 2 marks for answer of $x? - 4$ where ? is an = or any incorrect inequality symbol, or for answer shown as just -4</p>
		M1	<p>for a full method to solve the inequality</p> <p>or for a critical value of -4</p>	
		A1	<p>for $x \leq -4$ oe as final answer</p>	