

## Inequalities Past Paper Questions (MS)



Q1.

Question	Working	Answer	Mark	Notes
(a)		 -2                      3	2	M1 correct length line or one correct end and line A1 cao
(b)		$n > 4.8$	2	M1 for subtracting 3 from both sides or dividing all terms by 5 as a first step ( $n = 4.8$ ) A1 cao

Q2.

Question	Working	Answer	Mark	Notes
(a)		-1, 0, 1, 2, 3	2	B2 for correct 5 values which may be in any order with no repeats (B1 four correct values and none incorrect or -2, -1, 0, 1, 2, 3)
(b)	$3x > 11$ $x > 1\frac{1}{3}$ or 3.66.. OR $(16 - 5) \div 3$ $1\frac{1}{3}$ or 3.66..	4	3	M1 $3x > 11$ or $3x > 16 - 5$ or $3x + 5 - 5 > 16 - 5$ A1 $1\frac{1}{3}$ or 3.6(66..) or 3.7 (Accept = or $\geq$ in place of $>$ ) B1 ft OR M1 $(16 - 5) \div 3$ A1 $1\frac{1}{3}$ or 3.6(66..) or 3.7 B1 ft

Q3.

5MB3H 01 November 2015				
Question	Working	Answer	Mark	Notes
(a)		$x > -4$	1	B1 cao
(b)		$y \leq 3$	2	M1 for intention to isolate $y$ or for $y = 3$ or $y < 3$ A1 cao
(c)		-1,0,1	2	M1 for listing -3, -2, -1,0,1 or -1, 0,1,2,3 or for $-2 < ? < 2$ A1 for -1,0,1



Q4.

PAPER: 1MA0/1H				
Question	Working	Answer	Mark	Notes
(a)		Diagram	2	B2 for fully correct solution with all three aspects with no ambiguity Aspect 1: circle at 3 Aspect 2: circle not shaded Aspect 3: arrow pointing left indicating extension beyond -4 or line extending beyond -4 (B1 for any two aspects)
(b)		$x \geq 5$	2	M1 for intention to add 7 to both sides (of inequality or equation) or to divide all 3 terms by 4 as a first step, or $(x =) 5$ A1 for $x \geq 5$ oe

Q5.

PAPER: 1MA0_1H				
Question	Working	Answer	Mark	Notes
(a)		$y > 0.5$	2	M1 for clear intention to subtract 5 from both sides of inequality or equation or divide all terms of the inequality or equation by 6 or $6y > 3$ or $0.5$ oe seen A1 for $y > 0.5$ oe as final answer
(b)		$-3 < x \leq 4$	2	B2 for $-3 < x \leq 4$ oe (B1 for one correct inequality, eg $-3 < x$ or $x > -3$ or $x \leq 4$ or $4 \geq x$ or $-3 \leq x < 4$ ) NB Accept the use of any letter

Q6.

PAPER: 5MB3H_01				
Question	Working	Answer	Mark	Notes
(a)		Inequality drawn	2	B2 for all three features of -2, 0 and right arrow (B1 for two of these features)
(b)		2	3	M1 for isolating the $y$ terms A1 for $3y < 8$ or $3y = 8$ or better B1 ft



Q7.

PAPER: IMA0_2H				
Question	Working	Answer	Mark	Notes
(a)		-4, -3, -2, -1, 0	2	B2 for all 5 correct values; ignore repeats, any order (B1 for 4 correct (and no incorrect) values or all 5 correct values and -5)
(b)		$x > 4\frac{1}{2}$	2	M1 for an attempt to expand brackets (eg $6 \times x - 6 \times 2$ ) or $6x - 12$ or for an intention to divide both sides by 6 as the first step or for $4\frac{1}{2}$ oe seen A1 for $x > 4\frac{1}{2}$ oe

Q8.

PAPER: 5MB3H_01				
Question	Working	Answer	Mark	Notes
(a)		-2, -1, 0, 1, 2	2	B2 for -2, -1, 0, 1, 2 (B1 for one error or omission)
(b)		$x > 3$	2	M1 for isolating either the constant terms or algebraic terms or for $x = 3$ A1 cao

Q9.

Question	Working	Answer	Mark	Notes
	$3x > 11$ $x > 1\frac{1}{3}$ or 3.66.. OR $(16 - 5) \div 3$ $1\frac{1}{3}$ or 3.66..	4	3	M1 $3x > 11$ or $3x > 16 - 5$ or $3x + 5 - 5 > 16 - 5$ A1 $1\frac{1}{3}$ or 3.6(66..) or 3.7 (Accept = or $\geq$ in place of >) B1 ft OR M1 $(16 - 5) \div 3$ A1 $1\frac{1}{3}$ or 3.6(66..) or 3.7 B1 ft

Q10.

Question	Working	Answer	Mark	Notes
		$x < 2$	2	M1 for an attempt to isolate $x$ and number terms or multiply all terms by 2, or for $\frac{3}{2}x < 3$ or $-\frac{3}{2}x < -3$ or $x = 2$ A1 cao



Q11.

Question	Working	Answer	Mark	Notes
(a)		-1, 0, 1, 2, 3	2	B2 for all 5 correct values; ignore repeats, any order. (-1 for each omission or additional value)
(b)	$7x - 3x < 4 + 9$ $4x < 13$	$x < 3.25$	2	M1 for a clear intention to use a correct operation to collect $x$ terms or non- $x$ terms in an (in)equality A1 for $x < 3.25$ oe  (SC: B1 for 3.25 oe seen if M0 scored)

Q12.

Question	Answer	Mark	Mark scheme	Additional guidance
	16	P1	for process to formulate an equation or inequality, eg $2x + 3x + 10 = 90$ or for $90 - 10$	*denotes an equality or inequality symbol Accept equivalent forms
		P1	for a process to solve the equation or inequality by isolating terms in $x$ , eg $5x = 90 - 10$ or for $(90 - 10) \div 5$	Award P2 for an embedded answer of 16, which could be shown on the diagram as 32, 48, (10) or written as $x$ embedded in working in an equation.
		A1	cao  SC B1 for $x = 34$ or for a value in the range $15 \leq x < 16$	