

## Mark schemes

Q1.

(a)  $(x - 10)(x + 10)$

*either order  
ignore fw*

B1

Additional Guidance

$(x + 10)(x + -10)$

B1

Condone missing bracket at end only

$(x - 10)(x + 10$

B1

$(x - 10(x + 10)$

B0

$(x - 10)(x + 10)$  followed by attempt to solve, e.g. ~~answer~~  $x = -10$

B1

answer only  ~~$x = 10$~~ ,  $x = -10$

B0

(b)  $7x - 2x > 1 - 6$  or  $5x > -5$   
 or  $6 - 1 > 2x - 7x$  or  $5 > -5x$   
 or  $1 > -x$

*oe  
collecting terms*

M1

$x > -1$  or  $-1 < x$

*SC1 incorrect sign e.g.  $x > 1$  or  $x = -1$   
or answer of  $-1$*

A1

Additional Guidance

Answer  $x > \frac{-5}{5}$

M1A0

Answer only  $\frac{-5}{5}$

SC0

$x > -1$  with  $-1$  or  $0, 1, 2, \dots$  as the answer

M1A0

[3]

Q2.

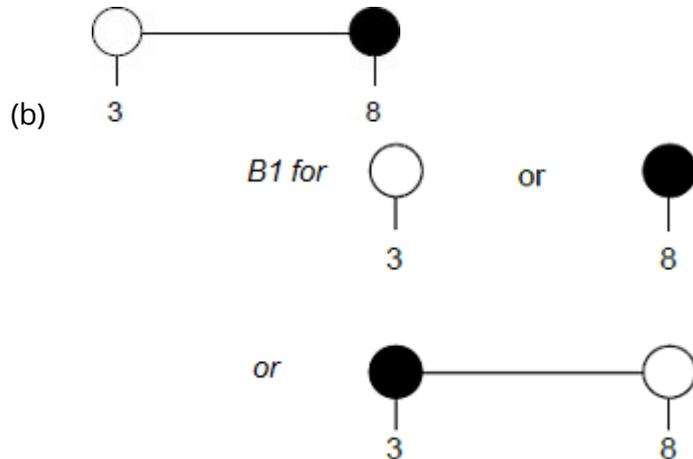
(a)  $4x \leq 13 + 7$  or  $x - \frac{7}{4} \leq \frac{13}{4}$  oe

M1

$x \leq 5$

SC1  $x < 5$  or  $x = 5$  or  $x \geq 5$

A1



B2

[4]

Q3.

(a) Open circle at  $-2$  with line going right to at least  $4$

or

arrow (of any length) to the right

Strand (i)

If line is marked with any sort of circle at the RHS this is Q0

Q1

(b)  $3x \leq 11 - 5$  or  $3x \leq 6$  or  $-2 \leq 0$

Working with  $=$  sign must be recovered to  $\leq$  to gain any credit

M1

$x \leq 2$

Must have  $x \leq$  on answer line

SC1 for  $x < 2$

A1

[3]

Q4.

(a)  $4x + 12 = 17$  or  $x + 3 = \frac{17}{4}$   
 $4x + 3 = 17$  is M0

M1

$$4x = 17 - 12 \text{ or } 5 \text{ or } x = \frac{17}{4} - 3$$

for correct rearranging  
 $4x = 17 - 3$  is M1  
 $4x = 17 + 12$  is M0

M1

$$x = 1\frac{1}{4}$$

oe ft if M1 M0 or M0 M1 awarded

A1 ft

(b)  $2n > 5 + 1$  or  $2n > 6$

M1

$$n > 3$$

$n = 3$  is A0

A1

[5]

Q5.

$$-3, -2, -1, 0, 1, 2$$

One error or omission B1

$-4 < n \leq 2$  B1

B2

[2]

Q6.

$$3 < n$$

B1

$$n < 7$$

B1

$$3, 4, 5, 6$$

ft their double-sided inequality

Correct answer gets 3 marks

ft their inequality

SC2 3, 4, 5, 6 with one incorrect answer or any three of 3, 4, 5, 6 with no incorrect answers

SC1 any two of 3, 4, 5, 6 with no incorrect answers or any three of 3, 4, 5, 6 with one incorrect answer

B1ft

[3]

Q7.

(a)  $5x \geq 29 + 11$

$$\text{or } x - \frac{11}{5} \geq \frac{29}{5}$$

$$\text{or } x \geq \frac{40}{5}$$

oe

M1

$$x \geq 8$$

SC1 8

$$\text{SC1 } x \geq 3.6 \text{ or } x \geq 3\frac{3}{5}$$

A1

(b)



B1  $x < 4$



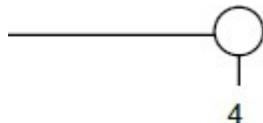
or

condone missing arrow for B2 or B1

B2

Additional Guidance

Intention must be clear to indicate a minimum of a line drawn to the left of hollow circle positioned at 4



Is B2



implies

is B1

[4]

Q8.

$$3x > 13 + 5$$

$$\text{oe } 3x > 18$$

$$3x - 18 > 0$$

$$x - 6 > 0$$

$$x > \frac{18}{3}$$

M1

$x > 6$

SC1  $x \geq 6$

A1

[2]

Q9.

$3x < -9$  or  $x < -3$

oe

M1

-4

SC1 For  $x \leq -4$

A1

[2]

Q10.

(a)  $\frac{6}{3} \leq w < \frac{18}{3}$  or  $2 \leq w$  ..... or .....  $w < 6$

M1

$2 \leq w < 6$  or  $2 \leq w \leq 5$

A1

2 3 4 5

ft M1 A0 and inequality of form  $a \leq w < b$  or  $a \leq b$

SC2 Answer 2 3 4 5 6 or 3 4 5 with M0

SC1 Answer 6 9 12 15 with M0

SC1  $\frac{6}{3} \leq w < \frac{18}{3}$

A1ft

(b) 16

B1

(c) their min from (a) - 3

M1

-1

ft their min from (a)

A1ft

[6]

Q11.

$5d - d > 17 + 3$

Allow one sign or arithmetic error

e.g.  $4d > 21$  or  $5d - d > 17 - 3$

M1

$d > 5$

A1

[2]

Q12.

$$-4 < x \leq 5$$

B1

[1]

Q13.

$$(20 + w <) 3w + 6$$

M1

$$20 - \text{their } 6 < 2w$$

oe

M1

$$w > 7 \quad \text{or} \quad 7 < w$$

*ft from one error*

A1ft

[3]

Q14.

(a)  $5x < 6 + 2$

or  $5x < 8$

$$\frac{8}{5} \text{ or } 1.6 \text{ seen}$$

oe

M1

$$x < \frac{8}{5}$$

oe

A1

Additional Guidance

Sight of 1.6 or  $\frac{8}{5}$  score M1

(b) 2, 3, 4, 5, 6

*B1 for one extra or one missing eg*

*2, 3, 4, 5 1, 2, 3, 4, 5, 6 2, 3, 4, 5, 6, 7 2, 3, 5, 6*

B2

[4]