Summative Practice

Section A

1 $-15 < x < -11$
Answer: **B**

2 $-(2 + x) > x + 12$
$-2 - x > x + 12$
$2x < -2 - 12$
$2x < -14$
$x < -7$
Answer: **A**

3 Answer: **D**
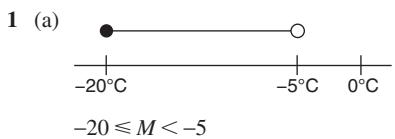
4 $x > -9$
Smallest integer $= -8$
Answer: **C**

5 $\dfrac{2(-3 - 5x)}{3} \geqslant 8$
$-6 - 10x \geqslant 24$
$-10x \geqslant 30$
$x \leqslant -3$
Largest value $= -3$
Answer: **B**

6 Answer: **C**

7 I, III, IV, II
Answer: **D**

8 $2(x - 3) < 5 + 3x \leqslant 2(x + 3)$
$2x - 6 < 5 + 3x \leqslant 2x + 6$
$2x - 6 < 5 + 3x \qquad 5 + 3x \leqslant 2x + 6$
$x > -11 \qquad\qquad x \leqslant 1$
Answer: **C**

Section B

1 (a)
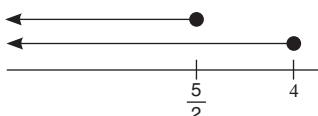

$-20 \leqslant M < -5$

(b) $-2 < x \leqslant 5$ and $1 < y < 7$
   (i) Largest value of $x + y$
        $= 5 + 6$
        $= 11$ (x and y are the largest)
   (ii) Largest value of $y - x$
        $= 6 - (-1)$
        $= 7$ (y is the largest and x is the smallest)

Section C

1 (a)
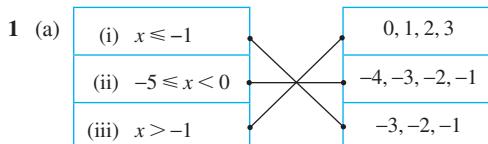
(b) Monday: $x \geqslant 10$
Tuesday: $y \geqslant 10 + 4$
Wednesday: $z \geqslant 10 + 4$
Total $= x + y + z$
Inequality for total distance in running,
$J \geqslant 10 + 14 + 14$
$J \geqslant 38$

(c) $4x + 5 \leqslant 15$ and $\quad x - 2 \leqslant 6 - x$
$\quad\quad 4x \leqslant 10 \qquad\qquad x + x \leqslant 6 + 2$
$\quad\quad\quad x \leqslant \dfrac{5}{2} \qquad\qquad 2x \leqslant 8$
$\qquad\qquad\qquad\qquad\qquad x \leqslant 4$

Hence, $x \leqslant \dfrac{5}{2}$

(d) $-5 \leqslant \dfrac{3 - 2x}{2} < 3$

$-10 \leqslant 3 - 2x < 6$
$-13 \leqslant -2x < 3$
$\dfrac{-13}{-2} \geqslant x > \dfrac{3}{-2}$
$\dfrac{-3}{2} < x \leqslant \dfrac{13}{2}$
$x = -1, 0, 1, 2, 3, 4, 5, 6$