2.1 – Inequalities

Student name: _____ Score: _____

1. Solve for x.

$$10 < 2(6 - x)$$

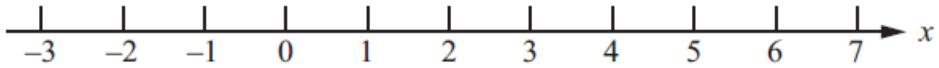
..... [3]

2. **(a)** Solve this inequality.

$$3(x + 2) > 5x - 2$$

..... [3]

(b) Show your answer to **part (a)** on this number line.



[2]

3. Solve.

$$2x + 3 \leqslant 4(x - 2)$$

..... [3]

4. Solve.

$$2x + 3 > 2(3x - 1)$$

..... [3]

5. Solve the inequality.

$$9 - x > 6x + 2$$

..... [2]

6. $|x| < 4$ and x is an integer.

Find the smallest possible value of x.

..... [1]

7. Solve.

$$4x + 2 > 3(2x - 4)$$

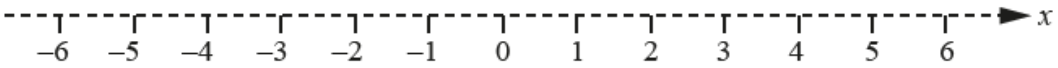
..... [3]

8. $3x + 2 \geqslant 5x - 6$

(a) Solve the inequality.

..... [2]

(b) Show your solution to **part (a)** on this number line.



[1]

9. Solve.

$$3x + 7 < 1$$

..... [2]

10. **(a)** Find a fraction, n, that satisfies this inequality.

$$\frac{5}{7} < n < \frac{6}{7}$$

n = ... [1]

(b) Write down an irrational number, m, that satisfies this inequality.

$$4 < m < 7$$

m = ... [1]

11. Solve $3 - x \geqslant 2x + 15$.

..... [2]

12. **(a)** Write down the integer solutions to this inequality.

$$-2 \leqslant 2x < 8$$

..... [2]

(b) Solve $2 + 2x > 5x + 14$.

..... [2]

13. Solve.

$$(x - 4)(x + 3) > 0$$

..... [2]

14. Solve.

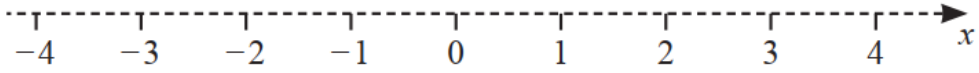
$$9 - 2x \leqslant 5(x + 6)$$

..... [3]

15. Solve $2x + 3 < 5x - 12$.

..... [2]

16. On the number line, show the inequality $-2 \leqslant x < 3$.



[2]

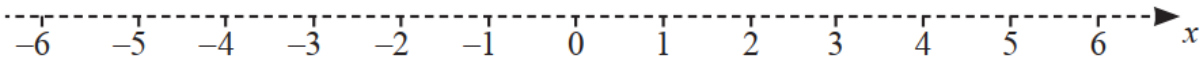
17. Solve.

$$6x^2 - 7x - 3 < 0$$

..... [3]

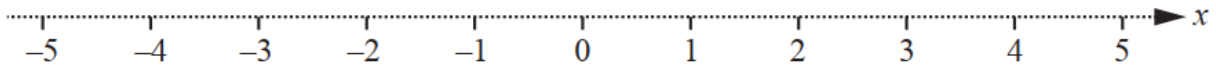
18. Show this inequality on the number line.

$$-3 < x \leqslant 4$$



[2]

19. Show the inequality $-1 < x \leqslant 4$ on this number line.



[2]

20. List the integer values of x for which $-4 \leqslant 2x < 6$.

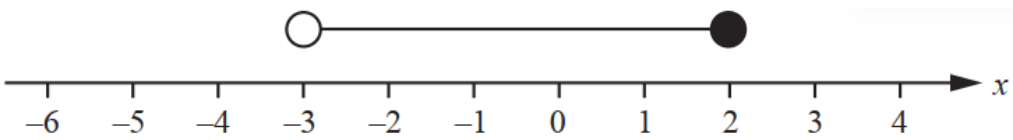
..... [2]

21. Solve.

$4x + 9 \leqslant 3(2x - 1)$

..... [3]

22.



Write down the inequality shown above.

..... [1]

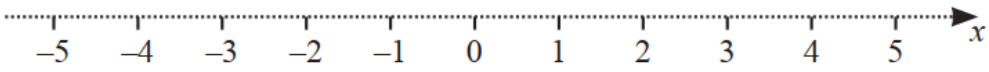
23. List the integer values of x such that $-3 < x \leqslant 1$.

..... [2]

24. (a) Solve $3x - 2 > 7x + 6$.

..... [2]

(b) Show your solution to **part (a)** on this number line.



[1]

25. Find the integer values of x when $-1 \leqslant x < 3$.

..... [2]

26. Solve $2x + 6 > 5x - 10$.

..... [2]