



- 1
- Write "x is greater than 3" as an inequality.
 - Write "y is at most 7" as an inequality.
 - Is 5 a solution of $x \geq 5$? Give a reason.

(3 marks)

a) Greater than: $>$

$$x > 3$$

b) At most = less than or equal to

$$y \leq 7$$

c) $\geq$ includes the number itself

$5 \geq 5$ is true

Yes, 5 is a solution

- 2
- n is an integer.

$$-2 < n \leq 3$$

Write down all the possible values of n .

(2 marks)

n must be greater than -2, so -2 itself is not included

n can be less than or equal to 3, so 3 is included

The integers are -1, 0, 1, 2, 3



- 3
- Solve $4x + 3 < 19$

(2 marks)

Subtract 3 from both sides: $4x < 16$

Divide both sides by 4: $x < 4$

$$x < 4$$

4

The diagram shows an inequality on a number line.

Write down the inequality shown, using x .



(2 marks)

The solid circle at -1 means -1 is included, so $x \geq -1$

The open circle at 4 means 4 is not included, so $x < 4$

Together

$$= x < 4$$

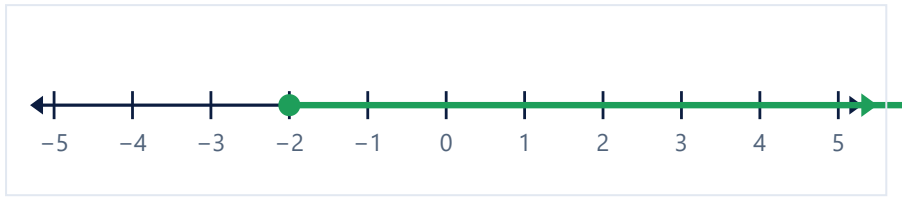
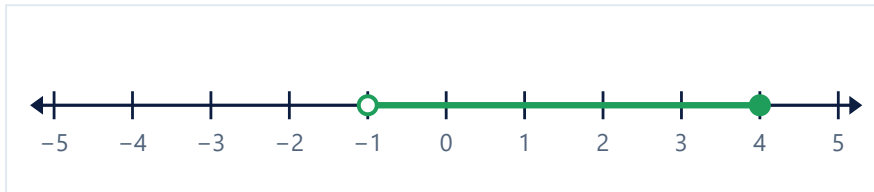


5

Show each inequality on its number line.

a. $x \geq -2$

b. $-1 < x \leq 4$

**a****b**

(2 marks)

Solid circle = included ($\leq$ or $\geq$), open circle = not included ($<$ or $>$)

a)

Solid circle at -2

Arrow to the right

Solid circle at -2, arrow right

b)

Open circle at -1

Solid circle at 4

Join them

Open circle at -1 to solid circle at 4

6

Solve $5x - 2 > 3x + 10$

(3 marks)

Subtract $3x$ from both sides: $2x - 2 > 10$ Add 2 to both sides: $2x > 12$ Divide both sides by 2: $x > 6$ $x > 6$

7

a. Solve $3(x - 1) \geq 6$

b. Show your solution on the number line.



(3 marks)

a) Divide both sides by 3

$$\begin{array}{rcl} x - 1 & \geq & 2 \\ +1 & & +1 \\ \hline x & \geq & 3 \end{array}$$

b) Draw a solid circle at 3, because 3 is included, with an arrow pointing right

8

Solve $\frac{2x}{5} - 1 < 3$

(3 marks)

Add 1 to both sides: $\frac{2x}{5} < 4$ Multiply both sides by 5: $2x < 20$ Divide both sides by 2: $x < 10$

$$\boxed{x < 10}$$

9

a. Solve $2(3x - 1) \leq 4x + 9$

b. Write down the largest integer that satisfies your answer to part a.

(3 marks)

a)

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

$$6x - 2 \leq 4x + 9$$

$$2x - 2 \leq 9$$

$$2x \leq 11$$

$$x \leq 5.5$$

$$\boxed{x \leq 5.5}$$

b) Whole numbers up to 5.5

$$\boxed{5}$$

10

- a. Solve $7 - 3x > 19$
 b. Show your answer on the number line.



(3 marks)

a)

$$7 - 3x > 19$$

Dividing by a negative flips the sign

$$x < -4$$

$$\text{Check } x = -5: 7 + 15 = 22 > 19$$

$$x < -4$$

b) Open circle at -4, arrow left

Open circle at -4, arrow to the left

11

- a. Solve $-3 < 2x + 1 \leq 9$
 b. Write down all the integer values of x that satisfy your answer to part a.

(4 marks)

a) Subtract 1 from all three parts

$$= 8$$

Divide all three parts by 2

$$= 4$$

b) The integers strictly greater than -2 and at most 4 are -1, 0, 1, 2, 3, 4

12

Solve $\frac{x+5}{3} \geq x-1$

(3 marks)

$$\frac{x+5}{3} \geq x-1$$

$$x+5 \geq 3x-3$$

$$5 \geq 2x-3$$

$$8 \geq 2x$$

$$4 \geq x$$

$$x \leq 4$$