

SCORE

# Algebra

With Classified  
answer book

8

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## 11- Inequalities

1.  $-1 \leq n < 4$

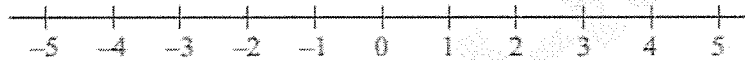
$n$  is an integer.

Write down all the possible values of  $n$ .

.....

2. (a)  $x > -3$

Show this inequality on the number line.



(b) Solve the inequality  $7y - 34 \leq 8$

.....

(c) Write down the integer values of  $x$  that satisfy the inequality

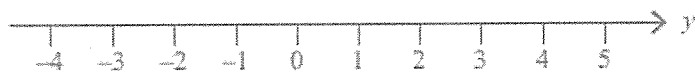
$$-2 \leq x < 3$$

.....

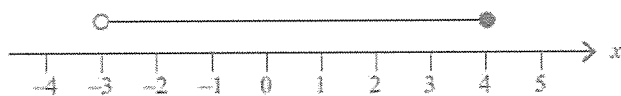
3. Solve.

$$4x - 1 < 2x + 19$$

4. (a) On the number line below, show the inequality  $-2 < y < 3$



(b) Here is an inequality, in  $x$ , shown on a number line.



Write down the inequality.

.....  
.....

(c) Solve the inequality  $4t - 5 > 11$

.....

5. (a)  $n$  is an integer.

$$-1 \leq n < 4$$

List the possible values of  $n$ .

.....

(b)



Write down the inequality shown in the diagram.

.....

(c) Solve  $3y - 2 > 13$

.....

6.  $-3 < n \leq 1$   $n$  is an integer.

(a) Write down all the possible values of  $n$ .

.....

(b) Solve the inequality  $3p - 7 > 11$

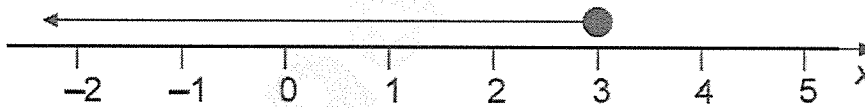
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$n$  is an integer such that  $-4 \leq 2n < 3$ .

(c) Write down the possible values of  $n$ .

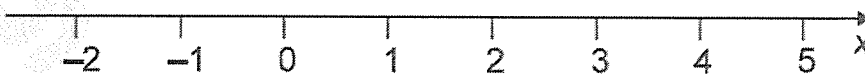
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7. Write down the inequality shown on the number line.



.....

(ii) Show the inequality  $x > 1$  on the number line below.



8. (a) (i) Solve the inequality  $7x - 3 > 18$

.....

$x$  is a whole number such that  $3x - 3 > x + 1$

(ii) Write down the smallest value of  $x$ .

.....

(b) Solve the inequality  $7y - 34 \leq 6 - 3y$

.....

9. (a) Solve  $5x + 12 < 17$

$x =$  .....

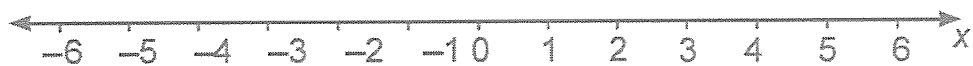
(b) Solve the inequality  $3(2y + 1) > 9$

.....

10. (a) Solve.  $2x - 9 < 6x + 3$

.....

(b) Show your solution on the number line.



11. Look at this inequality:

$$c^2d \leq -10$$

Think about the values that  $d$  could take, and tick ( $\checkmark$ ) the correct box in each row of the table.

	The inequality must be true	The inequality could be true	The inequality cannot be true
When $d > 0$			
When $d = 0$			
When $d < 0$			

Now do the same for  $c$

	The inequality must be true	The inequality could be true	The inequality cannot be true
When $c > 0$			
When $c = 0$			
When $c < 0$			

12. Look at this information about a pair of numbers,  $k$  and  $n$

$$k < n$$

and  $k^2 > n^2$

Give an example of what the numbers could be.

$$k = \underline{\hspace{2cm}} \quad n = \underline{\hspace{2cm}}$$



13. (a) Look at this information.

$$x \leq 0$$

Give an example of what the value of  $x$  could be. \_\_\_\_\_

Give a **different** example of what the value of  $x$  could be. \_\_\_\_\_

(b) Now look at this information.

$$2y + 3 \leq 11$$

What is the **largest** value that  $y$  could be? \_\_\_\_\_

14. Put a ring around the inequality that could express each of these situations.

The first is done for you.

There are 20 people in the club.

There are never enough biscuits for everyone to have one each.

$x \leq 20$

$x < 20$

$20 < x$

$20 \leq x$

$x$  = Number of biscuits.

(a) There are over a hundred people coming to the concert.

How many chairs will we need?

$x \geq 100 \quad x > 100 \quad 100 > x \quad 100 \geq x$

$x$  = Number of chairs.

(b) Max walks more quickly than Toby.

It takes Toby only 10 minutes to walk to the library from school.

$x \leq 10$

$x < 10$

$10 < x$

$10 \leq x$

$x$  = Number of minutes it takes Max to walk to the library from school.

15. (a) Look at this inequality.

$$y + 2 < 3$$

Which values of  $y$  below make the inequality true?

Tick (✓) all correct values.

-2	-1	0	1	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) i) Now look at this inequality.

$$y + 2 < 3y$$

Which values of  $y$  below make the inequality true?

Tick (✓) all correct values.

-2	-1	0	1	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(ii) James says:

'I can think of a value of  $y$  that makes both inequalities true.'

Show that James is **wrong**.