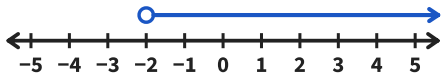
Solving Inequalities and Number Lines

ANSWERS

1

Show $x > -2$ on the number line.

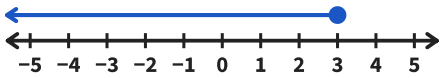


circle on −2: open

arrow: to the right

2

Show $x \leq 3$ on the number line.

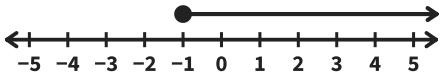


circle on 3: filled

arrow: to the left

3

Write down the inequality shown on the number line.



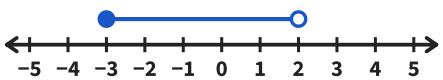
circle: filled, so −1 is included

arrow: right, the bigger numbers

Answer: $x \geq -1$

4

Show $-3 \leq x < 2$ on the number line. List the integers that fit.

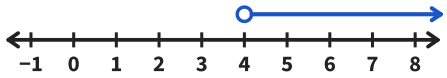


ends: −3 filled, 2 open

Integers: −3, −2, −1, 0, 1

5

Solve $4x + 3 > 19$. Show your answer on the number line.



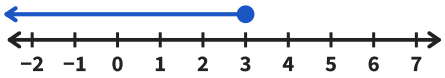
take 3: $4x > 16$

divide by 4: $x > 4$

Answer: $x > 4$

6 Notice the change!

Solve $9 - 2x \geq 3$. Show your answer on the number line.



take 9: $-2x \geq -6$

÷ (−2): $x \leq 3$, flip the sign

Answer: $x \leq 3$

7

Ella solves $12 - 3x < 6$ and writes $x < 2$. Explain her mistake. Then write the right answer.

she divided by −3 and did not flip the sign: $-3x < -6$

Answer: $x > 2$

8

A taxi fare is £3, plus £2 for every mile. Ravi has £15. What is the greatest whole number of miles he can travel?

$3 + 2m \leq 15$

$2m \leq 12$, so $m \leq 6$

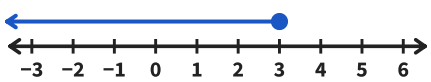
Answer: 6 miles

Solving Inequalities and Number Lines *further practice*

ANSWERS

9

Solve $6x - 5 \leq 13$. Show your answer on the number line.



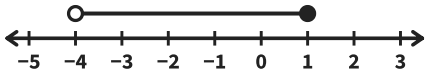
6x ≤ 18, so x ≤ 3

filled circle on 3, arrow left

Answer *x ≤ 3*

10

Write down the inequality shown on the number line.



open circle: −4 is not included

filled circle: 1 is included

Answer *−4 < x ≤ 1*

11

Solve $2(x - 4) < 6$.

2x − 8 < 6, so 2x < 14

x < 7

Answer *x < 7*

12

Solve $10 - 4x > 2$. Show your answer on the number line.



−4x > −8

÷ (−4), flip the sign: x < 2

Answer *x < 2*

13

Solve $\frac{x}{3} + 2 \geq 5$.

take 2: x ÷ 3 ≥ 3

multiply by 3: x ≥ 9

Answer *x ≥ 9*

14

Find the smallest integer that fits $7 - 2x < 1$.

−2x < −6, so x > 3

3 isn't included, so 4

Answer *4*

15

A van can carry up to 950 kg.
The driver weighs 75 kg and each crate weighs 40 kg. What is the greatest number of crates the van can carry?

75 + 40c ≤ 950, so 40c ≤ 875

c ≤ 21.875, so 21

Answer *21 crates*

16

Ali lists the integers that fit $-3 < x < 3$ as −3, −2, −1, 1, 2, 3.
Explain his two mistakes.

−3 and 3 are not included

and he missed 0

Answer *−2, −1, 0, 1, 2*