GCSE Maths: Solving linear inequalities (Foundation): worksheet

GCSE Maths - Inequalities - Foundation - Lesson 10.3

Name: _____ Date: _____ Score: _____

23 questions. Write your answers in the spaces. Answers and step-by-step help are free at **websink.site/gcse/maths/ch10-inequalities/foundation/solving-linear-inequalities/**

Exercise 10C Solving one-step and two-step inequalities (Non-calculator)

1 Solve each inequality.

(a) $x + 5 > 9$

Answer: .....

(b) $x - 3 \leq 4$

Answer: .....

(c) $2x < 14$

Answer: .....

(d) $\frac{x}{4} \geq 3$

Answer: .....

(e) $x + 7 \leq 2$

Answer: .....

(f) $5x > 35$

Answer: .....

2 Solve each inequality.

(a) $2x + 3 > 11$

Answer: .....

(b) $3x - 4 \leq 14$

Answer: .....

(c) $5x + 1 < 26$

Answer: .....

(d) $4x - 7 \geq 9$

Answer: .....

(e) $2x + 9 \leq 3$

Answer: .....

(f) $6x - 5 > -17$

Answer: .....

3 Solve each inequality. Give your answer with x on the left.

(a) $12 > 2x + 4$

Answer:

(b) $20 \leq 3x - 1$

Answer:

(c) $7 < 5x - 8$

Answer:

(d) $10 \geq 4x + 2$

Answer:

(e) $-4 < 2x + 6$

Answer:

(f) $2 > 3x - 7$

Answer:

4 Solve $x - 6 \geq 1$.

Answer:

5 Solve $4x < 28$.

Answer:

6 Solve each inequality. (The letter is divided by a number.)

(a) $\frac{x}{3} - 2 > 1$

Answer:

(b) $\frac{x}{2} + 3 \leq 5$

Answer:

(c) $\frac{x}{5} + 1 \geq 4$

Answer:

(d) $\frac{2x}{3} < 8$

Answer:

7 Hana solves $2x - 5 < 9$ and writes $x < 2$. Explain her mistake and give the correct solution.

Answer:

8 Show that $x = 4$ is a solution of $5x - 3 > 12$, but $x = 3$ is not.

Answer:

9 Solve $4x - 3 \leq 17$. Write down the largest whole number that satisfies the inequality.

Answer:

10 Solve $3n + 5 > 20$. Write down the smallest whole number that satisfies the inequality.

Answer:

11 The number n satisfies $5n - 4 < 31$. What is the largest whole-number value of n?

Answer:

12 Solve $2x + 7 \geq 25$ and show your solution on a number line.

Answer:

13 Solve $3x + 2 = 14$ and $3x + 2 > 14$. What is the difference between the two answers?

Answer:

14 Is it true that $2x < 10$ and $10 > 2x$ have the same solutions? Show your working.

Answer:

15 Mia and Leo both solve $3x + 4 > 19$. Mia gets $x > 5$. Leo gets $x \geq 5$. Who is right? Test $x = 5$ to decide.

Answer:

Exercise 10D Solving, number lines and whole-number solutions Non-calculator

1 Solve each inequality and show the solution on a number line.

(a) $2x + 1 > 9$

Answer:

(b) $3x - 2 \leq 7$

Answer:

(c) $4x + 5 < 1$

Answer:

(d) $5x - 1 \geq 14$

Answer:

2 Solve each inequality, then write down the **largest whole number** that satisfies it.

(a) $2x + 3 < 12$

Answer:

(b) $5x - 1 \leq 24$

Answer:

(c) $3x + 2 < 9$

Answer:

(d) $4x + 1 \leq 20$

Answer:

3 Solve each inequality, then write down the **smallest whole number** that satisfies it.

(a) $3x + 1 > 13$

Answer:

(b) $2x - 5 \geq 4$

Answer:

(c) $5x + 2 > 6$

Answer:

4 Solve each inequality, then list the **positive whole numbers** that satisfy it.

(a) $2x + 1 < 11$

Answer:

(b) $3x \leq 12$

Answer:

(c) $5x - 3 < 12$

Answer:

(d) $4x + 3 \leq 20$

Answer:

5 **Sam thinks of a whole number, n. He multiplies it by 3 and adds 4. The answer is less than 30. What is the largest number Sam could be thinking of?**

Answer:

6 **Dev solves $2x + 1 < 8$ and gets $x < 3.5$. He says the largest whole number is 4. Is he right? Explain.**

Answer:

7 **Explain why the smallest whole number satisfying $n > 1.3$ is 2, and not 1.**

Answer:

8 **Solve each inequality.**

(a) $\frac{x + 3}{2} \geq 4$

Answer:

(b) $\frac{2x - 1}{3} < 5$

Answer:

(c) $\frac{x + 4}{5} > 3$

Answer:

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