

Equations and Inequalities: math practice, Grade 6 – download the PDF

22 problems graded by difficulty (★ easy, ★★ medium, ★★★ hard). Try first, without looking at the solutions!

1 Is it a solution?



Substitute the given value to decide whether it is a solution.

a. $x + 6 = 15$ with $x = 8$

b. $3x = 21$ with $x = 7$

c. $y - 5 = 9$ with $y = 14$

d. $\frac{n}{4} = 3$ with $n = 12$

2 Adding and subtracting



Solve each equation.

a. $x + 7 = 19$

b. $y + 2.5 = 6$

c. $14 = m + 9$

3 Multiplying and dividing



Solve each equation.

a. $n - 8 = 11$

b. $6p = 54$

c. $\frac{k}{5} = 7$

d. $0.5w = 6$

4 Choose the inverse operation



For each equation, say which operation you perform on both sides, then solve.

a. $x + 12 = 30$

b. $x - 3 = 10$

c. $8x = 40$

d. $\frac{x}{6} = 2$

5 From words to equations



Write an equation with the variable n , then solve it.

a. 7 less than a number is 20.

b. Three times a number is 36.

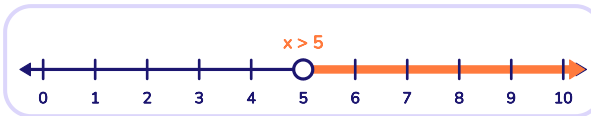
c. A number divided by 4 is 9.

d. 12 more than a number is 31.

6 Reading a number line



The number line shows all solutions of an inequality.



- Write the inequality.
- Which of the numbers 4, 5, 6 and 9 are solutions?

7 Test the numbers



- Which of 3, 6, 9 and 12 are solutions of $x > 6$?
- Which of 3, 6, 9 and 12 are solutions of $x \leq 6$?

8 Stickers



Maya had some stickers. A friend gave her 17 more and now she has 45. Write an equation and find how many stickers Maya had at first.

9 Concert tickets



Six tickets to a concert cost \$45 in all, and every ticket has the same price t . Write an equation and find the price of one ticket.

10 A weekend hike



Leo hiked d miles on Saturday and 3.5 miles on Sunday. In all he hiked 9.2 miles. Find d .

11 Fractions and decimals



Solve each equation.

a. $x + \frac{1}{4} = \frac{3}{4}$

b. $y - \frac{2}{3} = \frac{1}{3}$

c. $0.4x = 2.8$

12 Find the mistake



Sam solved $x + 9 = 21$ and wrote $x = 30$. Explain his mistake and give the correct solution.

13 Solve the inequalities



Solve each inequality.

a. $x + 5 > 12$

b. $y - 3 \leq 9$

c. $4n < 28$

d. $\frac{m}{3} \geq 6$

14 Graph an inequality



Draw $x \geq 3$ on a number line from 0 to 8. Should the circle at 3 be open or closed?

15 The elevator



An elevator can carry at most 1,200 pounds (about 544 kg). Four friends who weigh 640 pounds together get in. Write an inequality for the weight w of luggage they can add, and solve it.

16 Counting solutions

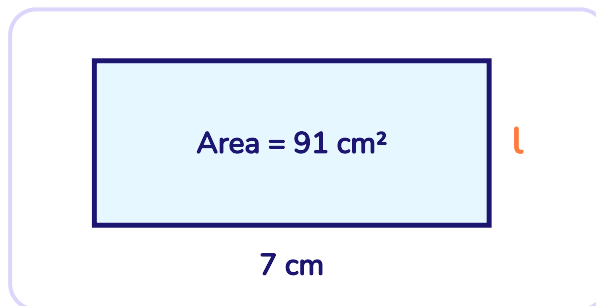


Tom says: “The inequality $x < 5$ has exactly four whole-number solutions.” Is he right? Justify.

17 The garden rectangle



A rectangle has a width of 7 cm and an area of 91 cm^2 .



- Write an equation for the length l and solve it.
- Find the perimeter of the rectangle.

18 Sharing a bill

★★★

Nine friends share a \$135 bill equally. Each pays x dollars.



- Write an equation.
- Solve it.
- One friend leaves and the other eight share the same bill. How much more does each of them pay than before?

19 Tall enough to ride

★★★

A roller coaster requires riders to be at least 48 inches tall (about 122 cm). Mia is 44.5 inches tall and hopes to grow g inches.

- Write and solve an inequality for g .
- Would a growth of 3 inches be enough?

20 Two conditions at once

★★★

Find all whole numbers x such that $x + 4 < 11$ and $3x > 12$.

21 Saving for a bike

★★★

Ana wants a bike that costs \$150. She already has \$64 and saves \$9 each week.

- Write an inequality for the amount s she still needs to save, and solve it.
- Write and solve an inequality for the number of weeks w .
- What is the smallest whole number of weeks?

22

Error in an inequality

Jo solved $5x \leq 40$ and wrote $x \leq 35$. Find the mistake, solve correctly, and check with one value inside and one outside the solution set.

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