

Grade 8 · Solving Linear Equations · Worksheet

Common Core 8.EE.C.7a, 8.EE.C.7b · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

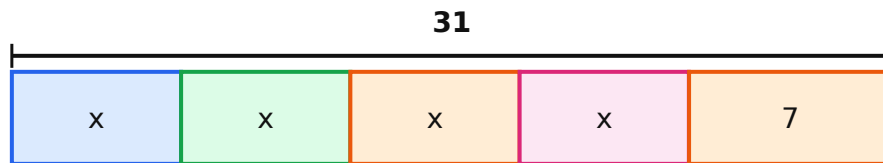
These twenty-two problems practice Common Core standards 8.EE.C.7a and 8.EE.C.7b. Solve multi-step linear equations with whole numbers, negatives, fractions and decimals, and use the distributive property and like terms.

You will also decide whether an equation has one solution, no solution or infinitely many solutions. The last six are word problems that need you to write and solve an equation.

Grade 8 Common Core: 8.EE.C.7a · 8.EE.C.7b

Problem 1: Add then multiply

Solve $4x + 7 = 31$.



Four equal parts of size x and a part of size 7 make 31.

Problem 2: Negative coefficient

Solve $-3x + 8 = -10$.

Problem 3: Fraction coefficient

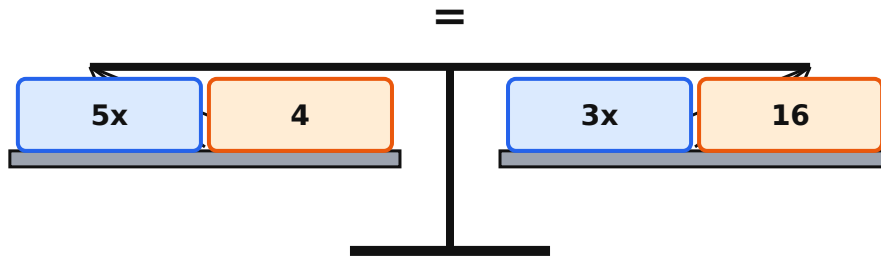
Solve $\frac{x}{4} - 3 = 5$.

Problem 4: Distribute first

Solve $3(2x - 1) = 45$.

Problem 5: Variables on both sides

Solve $5x + 4 = 3x + 16$.



The equation $5x + 4 = 3x + 16$.

Problem 6: Collect the x terms

Solve $7x - 2 = 4x + 13$.

Problem 7: Variable with a negative

Solve $9 - 2x = x + 21$.

Problem 8: Distribute and collect

Solve $4(x - 3) = 2x + 6$.

Problem 9: Combine like terms

Solve $3x + 2(x - 4) = 17$.

Problem 10: Fraction equation

Solve $\frac{2}{3}x + 1 = 9$.

Problem 11: Fractions on both sides

Solve $\frac{1}{2}x - 3 = \frac{1}{4}x + 2$.

Problem 12: Decimal equation

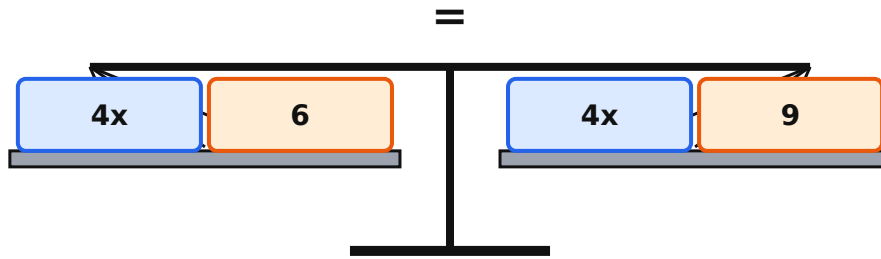
Solve $0.4x + 1.5 = 0.1x + 4.8$.

Problem 13: Fraction times parentheses

Solve $\frac{3}{4}(x - 8) = 9$.

Problem 14: No solution

Solve $4x + 6 = 4x + 9$. Explain your result.



The equation $4x+6=4x+9$.

Problem 15: Infinitely many

Solve $3(x+2)=3x+6$. Explain your result.

Problem 16: Sort the equations

Tell whether each equation has one solution, no solution or infinitely many solutions. Solve if there is one solution.

- a. $5(x-1)=2x+10$
- b. $7x-3=7x+2$
- c. $2(4x+3)=8x+6$

Problem 17: Gym memberships

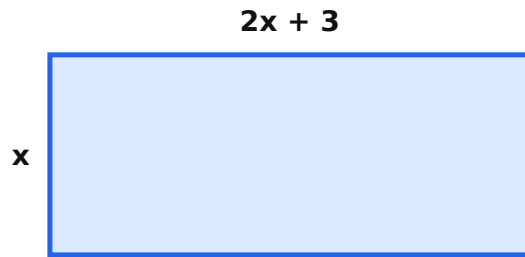
Jamal's gym charges \$15 to join plus \$4 per visit. Sofia's gym charges \$9 to join plus \$6 per visit. After how many visits do both memberships cost the same, and what is that cost?

Problem 18: Taxi rates

Cab A charges \$3.50 plus \$2 per mile. Cab B charges \$2 plus \$2.50 per mile. For what trip length are the fares equal, and what is the fare?

Problem 19: Rectangle perimeter

A rectangular garden is $2x+3$ feet long and x feet wide. Its perimeter is 48 feet. Find x and the length and width of the garden.



The perimeter is 48 feet.

Problem 20: Saving up

Aisha has \$40 and saves \$12 each week. Diego has \$100 and saves \$7 each week. After how many weeks will they have the same amount? How much is that?

Problem 21: Number puzzle

Three times the sum of a number and 4 equals 5 times the number minus 6. Write an equation and find the number.

Problem 22: Burning candles

Candle A is 12 inches tall and burns 0.5 inch per hour. Candle B is 9 inches tall and burns 0.25 inch per hour. After how many hours are the candles the same height, and how tall are they?

