

Equation Quest

Use equations to solve multi-step number puzzles.

GRADE 5 • TEKS 5.4.B

5.4.B "represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity;"

NAME _____

DATE _____

SOLVE STEP BY STEP

Use x to stand for the unknown number. If an equation has more than one operation, simplify grouped parts first, then use inverse operations to isolate x . Check by putting your answer back into the equation.

WORKED EXAMPLE

Solve: $4 * (30 + 6) = x$

1. Add inside the parentheses: $30 + 6 = 36$.
2. Multiply: $4 * 36 = 144$.
3. So, $x = 144$.

Answer: $x = 144$

PRACTICE 6 problems

1 Solve: $x + 27 = 83 - 19$

ANSWER _____

2 Solve: $7 * x - 16 = 152$

ANSWER _____

3 Solve: $(x / 9) + 14 = 32$

ANSWER _____

4 Solve: $205 - 5 * x = 120$

ANSWER _____

5 Solve: $3 * (x + 21) = 225$

ANSWER _____

6 Solve: $(x - 28) / 11 = 12$

ANSWER _____

APPLY IT Show your work

- 1** In an adventure game, Jada wants 188 energy points. She already has 13 points and earns the same number of points from each of 5 quests. Let x be the points earned from each quest. Write and solve an equation to find x .

WORK SPACE

ANSWER _____

- 2** A robotics club has 296 dollars. It buys 8 identical sensor kits and has 48 dollars left. Let x be the cost of one kit. Write and solve an equation to find x .

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve and show your steps: $2 * (x + 38) + 17 = 211$

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $x + 27 = 83 - 19$	$x = 37$
2	Solve: $7 * x - 16 = 152$	$x = 24$
3	Solve: $(x / 9) + 14 = 32$	$x = 162$
4	Solve: $205 - 5 * x = 120$	$x = 17$
5	Solve: $3 * (x + 21) = 225$	$x = 54$
6	Solve: $(x - 28) / 11 = 12$	$x = 160$

PART 2 • APPLY IT

1. **$x = 35$** $5 * x + 13 = 188$; $x = 35$ Subtract 13 from 188 to get 175 points earned from quests. Divide 175 by 5, so each quest earns 35 points.
2. **$x = 31$** $8 * x + 48 = 296$; $x = 31$ Subtract 48 from 296 to find that the kits cost 248 dollars altogether. Divide 248 by 8, so each kit costs 31 dollars.

CHALLENGE

 $x = 59$

Accept equivalent equations for the word problems when they correctly represent the situation. Accept answers with appropriate units, such as 35 points or 31 dollars.