

Solve the Situation

Use equations and inequalities to find unknown values.

GRADE 8 • 8.PAR.3.3

8.PAR.3.3 "Create and solve linear equations and inequalities in one variable within a relevant application."

NAME _____

DATE _____

KEEP BOTH SIDES BALANCED

Use inverse operations to get x alone, and do the same operation to both sides. For an inequality, reverse the inequality sign only when you multiply or divide both sides by a negative number. Check whether your answer makes the original statement true.

WORKED EXAMPLE

Solve: $7(x + 2) = 63$

1. Divide both sides by 7: $x + 2 = 9$.
2. Subtract 2 from both sides: $x = 7$.
3. Check: $7(7 + 2) = 63$.

Answer: $x = 7$

PRACTICE 6 problems

1 Solve: $4x + 8 = 28$

ANSWER _____

2 Solve: $6x - 8 = 28$

ANSWER _____

3 Solve: $3(x + 4) = 27$

ANSWER _____

4 Solve: $x/5 + 6 = 10$

ANSWER _____

5 Solve: $3x - 11 > 4$

ANSWER _____

6 Solve: $-3x + 12 \leq 0$

ANSWER _____

APPLY IT Show your work

- 1** You have saved \$45 for a pair of headphones that costs \$65. You earn \$4 for each dog-walking job. How many jobs do you need to earn enough money?

WORK SPACE

ANSWER _____

- 2** A tablet has 53 GB of free space. A game update needs 13 GB, and each video clip you save uses 4 GB. What is the greatest number of clips you can save after the update?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Solve: $4(x - 3) + 5 = x + 23$

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $4x + 8 = 28$	$x = 5$
2	Solve: $6x - 8 = 28$	$x = 6$
3	Solve: $3(x + 4) = 27$	$x = 5$
4	Solve: $x/5 + 6 = 10$	$x = 20$
5	Solve: $3x - 11 > 4$	$x > 5$
6	Solve: $-3x + 12 \leq 0$	$x \geq 4$

PART 2 • APPLY IT

1. **5 jobs** Write $45 + 4x = 65$. Subtract 45, then divide by 4 to get $x = 5$.
2. **10 clips** Write $13 + 4x \leq 53$. Solving gives $x \leq 10$, so the greatest whole number of clips is 10.

CHALLENGE

$x = 10$

Accept equivalent inequality forms, such as $5 < x$ for $x > 5$. For the tablet problem, accept an inequality solution of $x \leq 10$ and the context answer of 10 clips.