

Equation Escape Route

Solve equations from numbers to real life.

HIGH SCHOOL • MA.912.AR.2.1

MA.912.AR.2.1 "Given a real-world context, write and solve one-variable multi-step linear equations."

NAME _____

DATE _____

SOLVE IN ORDER

Use inverse operations to isolate x . If an expression has parentheses, distribute before combining like terms, then perform the same operation on both sides.

WORKED EXAMPLE

Solve: $4(x - 3) + 5 = 29$

1. Distribute: $4x - 12 + 5 = 29$
2. Combine like terms: $4x - 7 = 29$
3. Add 7 to both sides: $4x = 36$
4. Divide both sides by 4: $x = 9$

Answer: $x = 9$

PRACTICE 6 problems

1 Solve: $6x + 7 = 2x + 35$

ANSWER _____

2 Solve: $7(x + 2) - 8 = 48$

ANSWER _____

3 Solve: $x/2 + 11 = 17$

ANSWER _____

4 Solve: $15 - 2(x - 1) = 1$

ANSWER _____

5 Solve: $10(x - 1) + 6 = 56$

ANSWER _____

6 Solve: $(7/8)x + 2 = 16$

ANSWER _____

APPLY IT Show your work

- 1** Your phone plan has a \$18 base fee. It charges \$6 for each extra gigabyte, then applies a \$12 credit. Your final bill is \$66. How many extra gigabytes did you use?

WORK SPACE

ANSWER _____

- 2** You are saving for a game. You save \$8 each week and already have \$14. After spending \$12 on a subscription, you have \$58. How many weeks have you saved?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Solve: $7(2x - 6) + 1 = 8(x + 10) + 12$

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: $6x + 7 = 2x + 35$	$x = 7$
2	Solve: $7(x + 2) - 8 = 48$	$x = 6$
3	Solve: $x/2 + 11 = 17$	$x = 12$
4	Solve: $15 - 2(x - 1) = 1$	$x = 8$
5	Solve: $10(x - 1) + 6 = 56$	$x = 6$
6	Solve: $(7/8)x + 2 = 16$	$x = 16$

PART 2 · APPLY IT

1. **10 extra gigabytes** Write $18 + 6x - 12 = 66$. Simplify to $6x + 6 = 66$, then solve $x = 10$.
2. **7 weeks** Write $8x + 14 - 12 = 58$. Simplify to $8x + 2 = 58$, then solve $x = 7$.

CHALLENGE

 $x = 133/6$

Accept equivalent solution forms, including $22 \frac{1}{6}$ for the challenge. Students may use different valid orders of inverse operations after distributing and combining like terms.