



SECONDARY MATH • ALGEBRA

Multi-Step Equations Modified Practice Pack

IEP / SpEd-Aligned • Visual Scaffolds • Progressive Difficulty
8 Scaffolded Sets • 80 Practice Problems • 8 Modified Assessments

✓ Balance-scale model

✓ Color-coded variables

✓ Fraction-bar supports

✓ Procedural flowcharts

✓ IEP progress monitoring

✓ Math-talk stems

✓ Cut & paste sorts

✓ Detailed solutions

DESIGNED FOR HIGH-SCHOOL SPECIAL EDUCATION / IEP LEARNERS

Reduced problem density • 14-pt font • Generous white space • Visual procedural supports

Grades 9–12 • Aligned to common IEP goal categories for algebraic reasoning

How to Use This Pack

Welcome! This **Multi-Step Equations Modified Practice Pack** was built specifically for high-school Special Education and IEP-aligned classrooms — a setting where most commercial resources are far too dense, too elementary, or simply not designed with cognitive load in mind. Every page has been engineered to reduce extraneous demand so that working memory can be spent on the **mathematical reasoning**, not on decoding the layout.

The pack contains **eight scaffolded practice sets** that move in careful, research-backed increments from the intuitive balance-scale model all the way to mixed multi-step review. Each set has ten practice problems, a five-problem modified assessment, a procedural flowchart, an "I CAN" goal statement, key vocabulary, and a fully worked, narrated solution key. Together the pack provides **80 practice problems** and **40 assessment problems** — every one accompanied by a step-by-step solution that names the operation and the reason for each move.

SpEd modifications baked into every page

Reduced problem density	A maximum of 5 problems per page — well below the cognitive-overload threshold.
Large 14-pt equation font	Equations are set in 14-pt bold so they are legible at arm's length and from any seat.
Generous white space	Each problem has a dedicated dotted "show-your-work" box — no cramped margins.
Visual procedural flowchart	A numbered step strip sits at the top of every set so the procedure is always visible.
Color-coded variables	In Set 2, variables are teal and constants are purple to support visual discrimination.
Fraction-bar & balance-scale models	Concrete-pictorial supports precede the abstract equation in Sets 1 and 5.
IEP-goal-aligned rubrics	Every assessment is scored against four IEP goal categories (see overview page).

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How the sets progress: Each set adds exactly ONE new layer of complexity. Do not skip ahead — the scaffolds in earlier sets are the foundation for later ones.

IEP Goals & Progress Monitoring

Every assessment in this pack is scored against **four IEP goal categories** that are commonly written for high-school students with disabilities in algebra. The rubric on each assessment page converts a student's performance into a 1–4 rating per category, which can then be transferred to the master progress-monitoring sheet at the back of the pack. This gives case managers a clean, defensible data trail for progress reports and annual reviews.

The four IEP goal categories

Category	What it measures	Primary sets
G1 — Equation Setup	Student can translate a situation into a correct equation and identify the variable.	Sets 1, 2, 7
G2 — Inverse Operations	Student selects and applies the correct inverse operation to isolate the variable.	Sets 1, 5, 6, 8
G3 — Symbolic Manipulation	Student distributes, combines like terms, and moves terms across the equals sign accurately.	Sets 2, 3, 4, 8
G4 — Justification & Checking	Student justifies each step verbally or in writing and verifies the solution by substitution.	All sets (math-talk stems)

How the 4-point rubric maps to IEP language

The 4-point scale is written so it can be pasted almost verbatim into an IEP progress note. A student scoring **3 (Proficient)** is meeting the goal; **4 (Mastery)** indicates the goal can be considered for exit; **2 (Emerging)** signals the student needs continued scaffolding; **1 (Beginning)** indicates the student requires re-teaching and possibly a goal revision. Each assessment rubric names the specific behavior at every level so ratings are consistent across staff.

Progress monitoring cycle

1. Pre-assess	Give the Set 1 assessment as a baseline within the first week.
2. Teach & assess	After each set, record the 1–4 ratings on the master sheet (page 83).

Math-Talk Sentence-Stem Cards

Cut these cards apart (or project them) and give one to each pair. The stems give students the **language of mathematical reasoning** — especially powerful for IEP learners who understand the math but struggle to verbalize it. Use them during the "math-talk" minutes built into every set.

I agree because...

I notice that the variable is on both sides, so first I...

I disagree because...

My first step is to ____ because it undoes the ____.

My strategy is to...

I can check my answer by substituting ____ back in.

I can model this with...

The inverse operation of ____ is ____.

A simpler way to say this is...

I kept the equation balanced by doing ____ to BOTH sides.

I'm not sure about...

I combined like terms first because ____.

How did you get...?

I distributed the ____ to every term inside the parentheses.

Can you explain why...?

The solution makes sense because ____.

Teacher tip: Have students physically hold up their card when they use the stem. This makes the discourse visible and rewards mathematical language use.

1

Two-Step Equations with the Balance-Scale Model

Practice Set 1 of 8

I CAN: solve a two-step equation ($ax + b = c$) by undoing operations in the correct order and keeping both sides balanced.

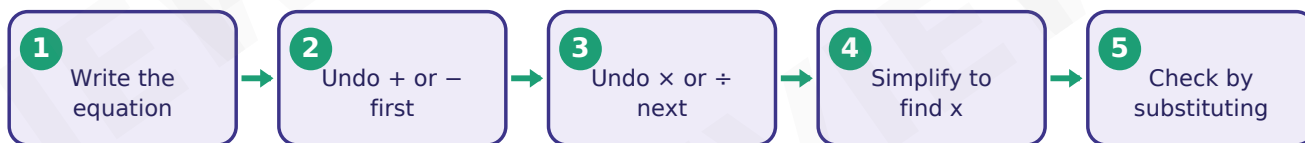
Key vocabulary

Two-step equation — an equation that needs exactly two inverse operations to solve

Inverse operation — the opposite operation that "undoes" another ($+$ and $-$, $\times$ and $\div$)

Balance — both sides of the $=$ sign stay equal; whatever you do to one side, do to the other

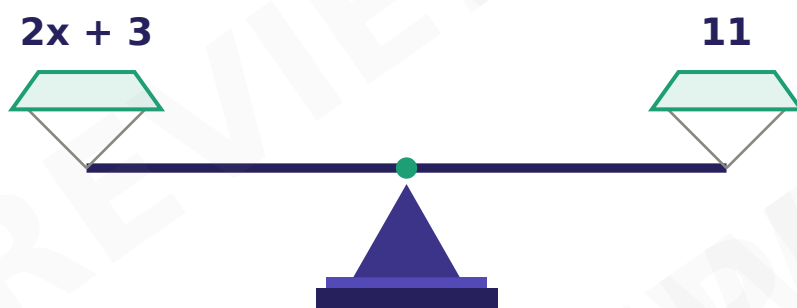
Procedural flowchart — follow the numbers



Keep this strip visible while you work. Each arrow shows the order of operations.

Worked example — study this before you begin

The equals sign means **balance**. A balanced scale shows that the two sides weigh the same. To find x , take the same weight off BOTH pans.



Both sides stay balanced — do the same to each side!

Solution
0

$$2x + 3 = 11$$

1 Take 3 off BOTH pans (subtract 3).

$$2x + 3 - 3 = 11 - 3 \rightarrow 2x = 8$$

2 Split each side into 2 equal groups (divide by 2).

$$2x \div 2 = 8 \div 2 \rightarrow x = 4$$

$$x = 4 \quad (\text{Check: } 2(4) + 3 = 11 \checkmark)$$

Set 1 · Practice

Problems 1–5

1 $2x + 3 = 11$

Show your work →

2 $3x - 5 = 16$

Show your work →

3 $4x + 7 = 19$

Show your work →

4 $5x - 2 = 23$

Show your work →

5 $2x + 9 = 21$

Show your work →

Set 1 · Modified Assessment

5 problems · score with rubric below

Name: _____ Date: _____ Score: ____ / 16

1 $2x + 5 = 13$

Show your work →

2 $3x - 4 = 17$

Show your work →

3 $6x + 2 = 20$

Show your work →

4 $4x - 7 = 9$

Show your work →

5 $8x + 3 = 35$

Show your work →

Scoring rubric — circle the rating for each IEP goal category

IEP Goal Category	4 — Mastery	3 — Proficient	2 — Emerging	1 — Beginning
G1 — Equation Setup (translates / defines variable)	Sets up equation & variable independently; correct	Sets up with minor prompt; equation correct	Sets up with support; partial accuracy	Unable without direct modeling
G2 — Inverse Operations (selects & applies)	Correct inverse ops in correct order; no errors	Correct ops; one minor arithmetic slip	Correct idea; order or sign errors	Random ops; no clear sequence
G3 — Symbolic Manipulation (distribute / combine / move)	All manipulation accurate; like terms combined	Mostly accurate; one sign/distribution error	Multiple errors; recognizable strategy	Unable to manipulate symbols
G4 — Justification & Checking (reasons / verifies)	Justifies each step; verifies by substitution	Justifies most steps; checks answer	Lists steps without reasons; partial check	No reasoning or verification shown

Total: add the four ratings (max 16). 14–16 = Mastery · 11–13 = Proficient · 7–10 = Emerging · ≤ 6 = Beginning.

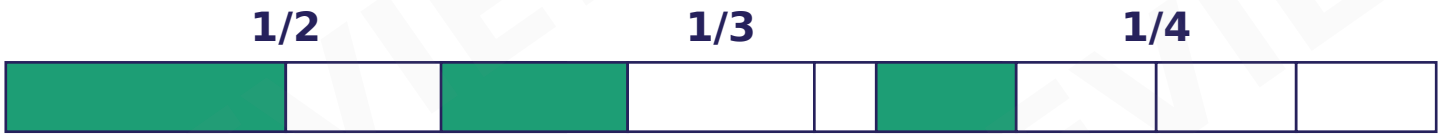
Set 1 — Practice Solutions (1-10)

Every step is named with its reason. Read these aloud — math-talk stems help!

Solution 1	$2x + 3 = 11$
1	Subtract 3 from BOTH sides to undo the +3 (keep the scale balanced). $2x + 3 - 3 = 11 - 3 \rightarrow 2x = 8$
2	Divide BOTH sides by 2 to undo the $\times 2$. $2x \div 2 = 8 \div 2 \rightarrow x = 4$
$x = 4$ (Check: $2(4) + 3 = 8 + 3 = 11$ ✓)	
Solution 2	$3x - 5 = 16$
1	Add 5 to BOTH sides to undo the -5 . $3x - 5 + 5 = 16 + 5 \rightarrow 3x = 21$
2	Divide BOTH sides by 3 to undo the $\times 3$. $3x \div 3 = 21 \div 3 \rightarrow x = 7$
$x = 7$ (Check: $3(7) - 5 = 21 - 5 = 16$ ✓)	
Solution 3	$4x + 7 = 19$
1	Subtract 7 from BOTH sides. $4x + 7 - 7 = 19 - 7 \rightarrow 4x = 12$
2	Divide BOTH sides by 4. $4x \div 4 = 12 \div 4 \rightarrow x = 3$
$x = 3$ (Check: $4(3) + 7 = 12 + 7 = 19$ ✓)	
Solution 4	$5x - 2 = 23$
1	Add 2 to BOTH sides. $5x - 2 + 2 = 23 + 2 \rightarrow 5x = 25$
2	Divide BOTH sides by 5. $5x \div 5 = 25 \div 5 \rightarrow x = 5$
$x = 5$ (Check: $5(5) - 2 = 25 - 2 = 23$ ✓)	
Solution 5	$2x + 9 = 21$
1	Subtract 9 from BOTH sides. $2x + 9 - 9 = 21 - 9 \rightarrow 2x = 12$
2	Divide BOTH sides by 2. $2x \div 2 = 12 \div 2 \rightarrow x = 6$
$x = 6$ (Check: $2(6) + 9 = 12 + 9 = 21$ ✓)	

Worked example — study this before you begin

A fraction bar shows how many equal parts make a whole. The **denominator** tells you how many parts; the **numerator** tells you how many you have.



Solution
0

$$x/4 + 3 = 8$$

1

Subtract 3 to isolate the fraction.

$$x/4 + 3 - 3 = 8 - 3 \rightarrow x/4 = 5$$

2

Multiply both sides by 4 (the denominator).

$$4 \cdot (x/4) = 4 \cdot 5 \rightarrow x = 20$$

$$x = 20 \quad (\text{Check: } 20/4 + 3 = 5 + 3 = 8 \checkmark)$$

Set 7 · Practice

Problems 1–5

- 1** Maria has 3 boxes of markers. Each box has the same number. She gets 4 more markers and now has 19. How many in each box?

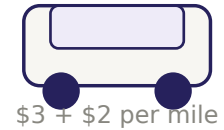
Let x = markers per box



Show your work →

- 2** A taxi charges \$3 to start plus \$2 per mile. A ride costs \$15. How many miles was the ride?

Let x = number of miles



Show your work →

- 3** Tom buys 4 notebooks and a \$2 pen. He spends \$18 total. What does one notebook cost?

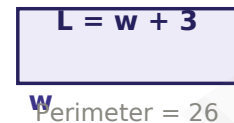
Let x = price per notebook



Show your work →

- 4** A rectangle's length is 3 more than its width. The perimeter is 26. Find the width.

Let w = width



Show your work →

- 5** Lee earns \$7 per hour plus a \$5 bonus. He earned \$40. How many hours did he work?

Let x = hours worked



starts \$12 → goal \$42

Show your work →



WHAT'S INSIDE THIS RESOURCE

Multi-Step Equations Modified Practice Pack

85 pages · 8 scaffolded sets · 80 + 40 problems · IEP / SpEd-aligned

1 Two-Step Equations

Balance-scale model

2 Variables on Both Sides

Color-coded variables

3 Distributive Property

Worked-example anchors

4 Combining Like Terms

Pre-solving simplification

5 Equations with Fractions

Fraction-bar supports

6 Equations with Decimals

Decimal place-value care

7 Word Problems

Picture supports

8 Mixed Review

All skills combined

80

Practice
Problems

40

Assessment
Problems

8

IEP Goal
Rubrics

85

Total
Pages

SPECIAL EDUCATION MODIFICATIONS BAKED INTO EVERY PAGE

- ✓ 14-pt font
- ✓ Max 5 problems/page
- ✓ Visual flowcharts
- ✓ Balance-scale & fraction-bar models
- ✓ IEP progress monitoring
- ✓ Math-talk stems
- ✓ Cut & paste sort
- ✓ Detailed answer key

FULL RESOURCE = 85 PAGES · DOWNLOAD ON TPT

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