# INVERSE OPERATIONS

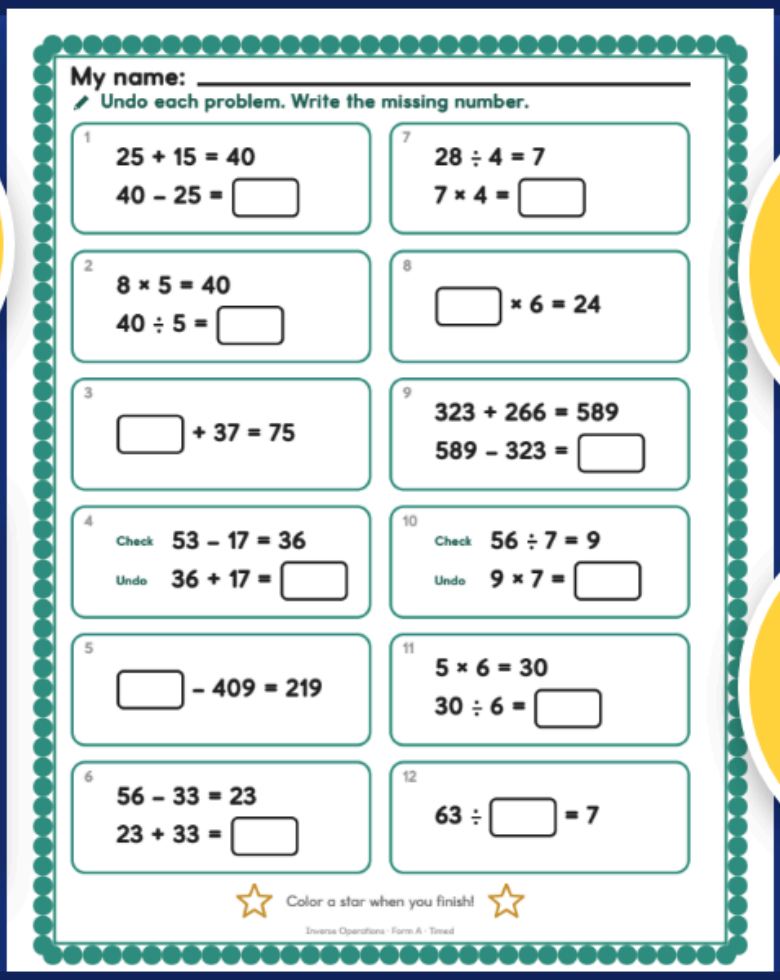
## PROBES FOR IEP PROGRESS MONITORING

**GRADES 3-6**

**4 TIMED FORMS**

**ANSWER KEY + GRAPH**





My name: _____

Undo each problem. Write the missing number.

1. 25 + 15 = 40; 40 − 25 = ☐
2. 8 × 5 = 40; 40 ÷ 5 = ☐
3. ☐ + 37 = 75
4. Check 53 − 17 = 36; Undo 36 + 17 = ☐
5. ☐ − 409 = 219
6. 56 − 33 = 23; 23 + 33 = ☐
7. 28 ÷ 4 = 7; 7 × 4 = ☐
8. ☐ × 6 = 24
9. 323 + 266 = 589; 589 − 323 = ☐
10. Check 56 ÷ 7 = 9; Undo 9 × 7 = ☐
11. 5 × 6 = 30; 30 ÷ 6 = ☐
12. 63 ÷ ☐ = 7

Color a star when you finish!

Inverse Operations · Form A · Timed

**BRIGHT PATH SPED**

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- This file is for one classroom: one teacher, one caseload.
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## This is a fillable PDF

- Open it in a PDF reader (Adobe Acrobat Reader, Preview, or your browser), click into a line or box, type, and Save As once per student.
- Print one copy per student per week: the student writes on the form and that same sheet is the one you score.
- It works offline. No account, no subscription, no internet connection needed after you download it.

## Student data

Completed pages carry a real student's name and scores. Store, hand over and destroy this file the same way you would any other student record.

## Need help?

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PREVIEW

# Binder Cover, Spine Label & Divider Tabs

A binder cover, six divider tabs, and a short setup list.

## Binder cover & spine label

Student _____ Case manager _____ School year _____

Goal start date _____ Next review date _____

Cut along the outer edge and use as a binder cover, a folder label, or a clipboard cover for this student's probe folder.

## Divider tabs — print and cut

**01** Start Here
The six-step routine, one page.

**02** The Goal
The written goal and where forms A-D fit it.

**03** Probe Forms
The 4 rotating timed forms, one per week.

**04** IEP Data Sheet
The aim line, the weekly plot, the timed record.

**05** Caseload Summary
Every student on this goal, one grid, once a month.

**06** Family Update
The note home and the handoff sheet, ready to fill in.

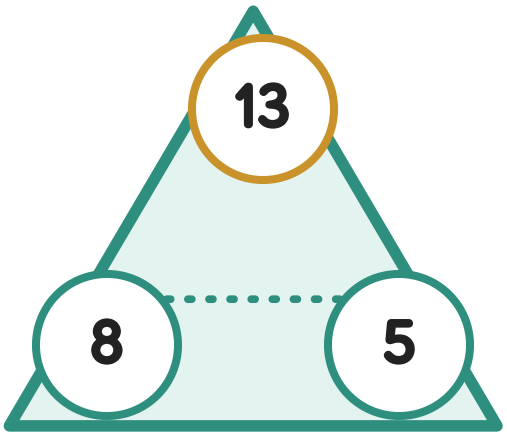
## Before the first probe

- Write the goal from the sample and change every bracket for this student.
- Decide the time limit with the team and write it on the goal page.
- Give the baseline: three forms, three different days, before the first plotted point.
- Share the rotation (A, B, C, D) with anyone else who might give a form.

PREVIEW

My name: _____

## Add and subtract undo each other.




**One family: 8, 5 and 13. Four facts.**

8 + 5 = 13

5 + 8 = 13

13 – 5 = 8

13 – 8 = 5

**1** **Look at the facts you know.**
The whole is 13. The parts are 8 and 5.

**2** **Undo it.**
Adding is undone by subtracting. Subtracting is undone by adding.

**3** **Write the missing number in the box.**
13 – 5 = 8. Then 8 + 5 puts it back to 13.

9 + 6 = 15

15 – 6 = ☐

17 – 9 = 8

8 + 9 = ☐

☐ + 7 = 16

☐ – 5 = 12

PREVIEW

Preview - Bright Path Sped

My name: _____

Undo each problem. Write the missing number.

1
25 + 15 = 40
40 – 25 = ☐

2
8 × 5 = 40
40 ÷ 5 = ☐

3
☐ + 37 = 75

4
Check 53 – 17 = 36
Undo 36 + 17 = ☐

5
☐ – 409 = 219

6
56 – 33 = 23
23 + 33 = ☐

7
28 ÷ 4 = 7
7 × 4 = ☐

8
☐ × 6 = 24

9
323 + 266 = 589
589 – 323 = ☐

10
Check 56 ÷ 7 = 9
Undo 9 × 7 = ☐

11
5 × 6 = 30
30 ÷ 6 = ☐

12
63 ÷ ☐ = 7

PREVIEW

Color a star when you finish!

Preview - Bright Path Sped

My name: _____

Undo each problem. Write the missing number.

1
93 – 17 = 76
76 + 17 = ☐

2
81 ÷ 9 = 9
9 × 9 = ☐

3
☐ + 57 = 90

4
Check 37 + 52 = 89
Undo 89 – 52 = ☐

5
☐ – 183 = 704

6
42 + 52 = 94
94 – 52 = ☐

7
8 × 6 = 48
48 ÷ 6 = ☐

8
5 × ☐ = 15

9
253 + 565 = 818
818 – 253 = ☐

10
Check 9 × 5 = 50
Undo 50 ÷ 5 = ☐

11
2 × 4 = 8
8 ÷ 4 = ☐

12
☐ ÷ 5 = 7

Color a star when you finish!



PREVIEW

# Answer Key and Scoring - Forms C-D

Each row reads: the item number, the line that holds the box with the answer in bold, and the kind of item. For a check item the key says whether the answer shown was right.

## Form C

| # | Answer | Right? |
|---|---|---|
| 1 | 89 − 24 = **65**<br>other fact, add/subtract | |
| 2 | 64 ÷ 8 = **8**<br>other fact, multiply/divide | |
| 3 | **28** + 21 = 49<br>missing addend | |
| 4 | 38 + 15 = **53**<br>check, add/subtract, claim not right (should be 54) | |
| 5 | **594** − 452 = 142<br>missing start (subtract) | |
| 6 | 24 + 33 = **57**<br>other fact, add/subtract | |
| 7 | 3 × 7 = **21**<br>other fact, multiply/divide | |
| 8 | **6** × 9 = 54<br>missing factor | |
| 9 | 484 + 144 = **628**<br>other fact, add/subtract | |
| 10 | 6 × 3 = **18**<br>check, multiply/divide, claim right | |
| 11 | 9 × 8 = **72**<br>other fact, multiply/divide | |
| 12 | 49 ÷ **7** = 7<br>missing dividend or divisor | |

Correct ___ / 12

## Form D

| # | Answer | Right? |
|---|---|---|
| 1 | 76 + 17 = **93**<br>other fact, add/subtract | |
| 2 | 9 × 9 = **81**<br>other fact, multiply/divide | |
| 3 | **33** + 57 = 90<br>missing addend | |
| 4 | 89 − 52 = **37**<br>check, add/subtract, claim right | |
| 5 | **887** − 183 = 704<br>missing start (subtract) | |
| 6 | 94 − 52 = **42**<br>other fact, add/subtract | |
| 7 | 48 ÷ 6 = **8**<br>other fact, multiply/divide | |
| 8 | 5 × **3** = 15<br>missing factor | |
| 9 | 818 − 253 = **565**<br>other fact, add/subtract | |
| 10 | 50 ÷ 5 = **10**<br>check, multiply/divide, claim not right (should be 9) | |
| 11 | 8 ÷ 4 = **2**<br>other fact, multiply/divide | |
| 12 | **35** ÷ 5 = 7<br>missing dividend or divisor | |

Correct ___ / 12

### Scoring reminder

- Timed. Count only what was finished when time was called. Self-corrections count as correct. Log the score the same day.
- On a check item the box holds the number the undo gives. It is right when it matches the key, whether or not the answer being checked was right.

PREVIEW

# IEP Data Sheet - Graph and Log

One row per probe. Three points under the aim line is a decision: change the teaching and write what changed in the notes.

Student _____ Criterion / aim _____ Goal date _____

Correct out of 12 in the set time · draw the aim line from the baseline to the criterion first, then plot each week




| # | Date | Form | Correct | Not correct | Score used | Notes |
|---|---|---|---|---|---|---|
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PREVIEW

# Inverse Operations - Caseload Summary

Every student on this goal, on one grid. Eleven rows, eight probes, one decision column.

Teacher / case manager _____ Skill _____ Marking period _____

| Student | Base | Crit | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | Trend | Decision |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
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## How to fill it

- One row per student on this skill. Baseline is the median of the first three probes.
- One column per weekly probe; write the score out of 12, not a percent.
- Trend: up, flat or down over the last four probes.
- Decision: keep going, change the teaching, or raise the target.
- Leave a cell blank rather than guess; a gap is more honest than a filled-in score.

## What it is for

Grouping. Rows that are flat together are a group; a row that is flat alone is a different question. Take this page to the data meeting instead of ten folders.

PREVIEW

# A Filled-In Data Log (Invented Student)

Dev is invented. Twelve weekly timed probes on inverse operations, the aim line, the change that three low points forced, and the criterion being met.

## The goal, as written for Dev, fourth grade (invented)

*By November 20, when given a 12-item inverse operations probe and 3 minutes, Dev will write the missing number for 10 of 12 items on 3 consecutive weekly probes, as measured by teacher-scored inverse operations probes (forms A–D).*

| # | Date | Form | Correct | Not correct | Graphed | Notes |
|---|---|---|---|---|---|---|
| 1 | 9/8 | A | 5 | 7 | 5 | baseline |
| 2 | 9/9 | B | 6 | 6 | 6 | baseline |
| 3 | 9/10 | C | 5 | 7 | 5 | baseline (median of 5, 6, 5 = 5) |
| 4 | 9/17 | D | 5 | 7 | 5 | added instead of subtracting on the other-fact items |
| 5 | 9/24 | A | 6 | 6 | 6 | same: 42 − 15 written as 57 |
| 6 | 10/1 | B | 5 | 7 | 5 | 3 under the aim line: added a say-the-undo step |
| 7 | 10/8 | C | 7 | 5 | 7 | says "undo it" first, then picks the operation |
| 8 | 10/15 | D | 8 | 4 | 8 | other-fact items now right |
| 9 | 10/22 | A | 8 | 4 | 8 | missing-number items still slip |
| 10 | 10/29 | B | 10 | 2 | 10 | criterion score, first time |
| 11 | 11/5 | C | 10 | 2 | 10 | second in a row at 10 |
| 12 | 11/12 | D | 11 | 1 | 11 | third in a row: goal met |

## How to read the log

- Baseline was the median of three forms on three days: 5, 6, 5, so 5. Not the average, not the best.
- The aim line runs from 5 at probe 1 to 10 at probe 12. Probes 4, 5 and 6 (5, 6, 5) sat under it: three in a row, so the teaching changed and the change is written on the row.
- The notes name where the misses fell: Dev added when the item asked him to undo a subtraction. A score alone would not have said that.
- Criterion was met on probes 10, 11 and 12 (10, 10, 11): three in a row at 10 of 12 or better.

## The progress report sentence this log produces

*On weekly timed inverse operations probes (12 items), Dev scored 5 of 12 at baseline and 10, 10 and 11 of 12 on the last three probes, meeting the criterion of 10 of 12 on 3 consecutive probes. Every number in it is on the log above; nothing is from memory.*

## Where every number in this example came from

- Baseline is the median of the first three probes, not an average and not the best score.
- Every score on the log traces to the row above it; nothing here is estimated.
- Copy this layout for your own student, with your own real scores.

PREVIEW