ACT MATH STRATEGY | GRADE 9-10

MASTERING MIXED OPERATIONS

INTEGERS, FRACTIONS & DECIMALS

A step-by-step guide to solving medium-difficulty problems with speed and accuracy. Learn to handle negative integers, decimals, and fractions simultaneously without losing points to simple errors.

THE CHALLENGE

$$(-12) + 18 \div 3 - 2.5 \times 4 + \frac{3}{4} = ?$$

Target Time:
45 Seconds

This problem tests your ability to juggle multiple number types while strictly applying the order of operations. One small sign error costs the point.

YOUR TOOLKIT: PEMDAS

P — Parentheses

E — Exponents

M } **D** — **TIER 1 PARTNERS**
Equal Priority (Left to Right)

A } **S** — **TIER 2 PARTNERS**
Equal Priority (Left to Right)

Crucial Rule: You do NOT always multiply before dividing.
You do whichever comes first!

THE 30-SECOND STRATEGY

- [ ] **Scan & Convert**
  Identify PEMDAS violations & convert fractions.
- [ ] **Calculate High Priority**
  Execute Multiplication & Division.
- [ ] **Calculate Low Priority**
  Execute Addition & Subtraction (Left to Right).

⚠ **WARNING:** Double-check negative signs. They are the #1 cause of errors.

STEP 1: UNIFYING THE LANGUAGE

$$(-12) + 18 \div 3 - 2.5 \times 4 + \frac{3}{4}$$

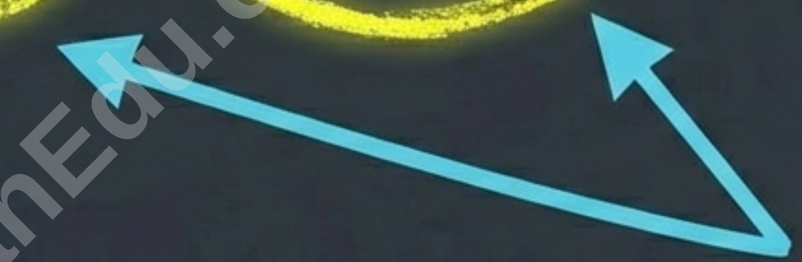
Make it all decimals for the calculator.

0.75

$$(-12) + 18 \div 3 - 2.5 \times 4 + 0.75$$

STEP 2: ISOLATE THE ACTION

$$(-12) + 18 \div 3 - 2.5 \times 4 + 0.75$$



High Priority "Islands". Solve these first.

Do not touch the addition or subtraction signs yet!

STEP 3: EXECUTE HIGH PRIORITY

$$(-12) + 18 \div 3 - 2.5 \times 4 + 0.75$$

$18 \div 3 = 6$

$2.5 \times 4 = 10$

$$(-12) + 6 - 10 + 0.75$$

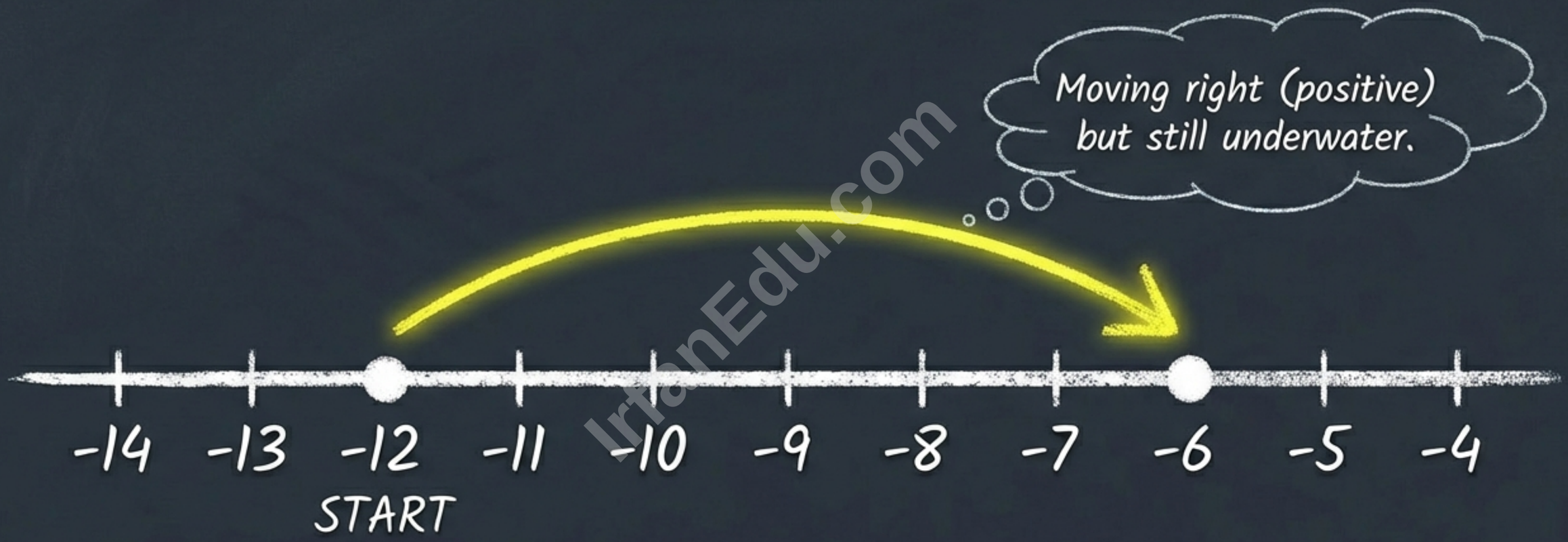
STEP 4: THE DANGER ZONE

$$(-12) + 6 - 10 + 0.75$$

The negative sign belongs to the 10. Do not treat this as '10 minus 6'.

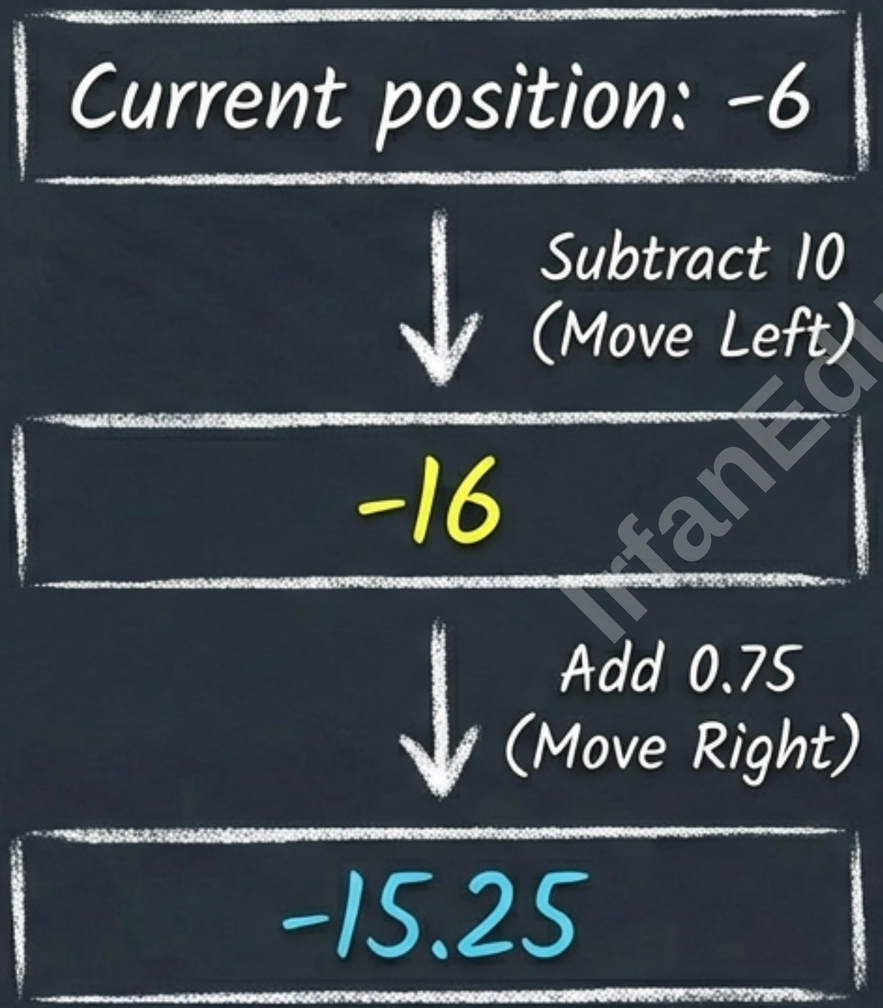
Rule: Strict Left to Right

VISUALIZING THE NEGATIVE



$$(-12) + 6 = -6$$

FINISHING THE SEQUENCE



$$-6 - 10 = -16$$

$$-16 + 0.75 = -15.25$$

THE FINAL REVEAL

$$(-12) + 18 \div 3 - 2.5 \times 4 + \frac{3}{4} = ?$$

-15.25

OR FRACTION FORM: -15 1/4

WARNING! COMMON ACT TRAPS

The Typewriter Error

Working strictly left-to-right without honoring PEMDAS.

$(-12) + 18 = 6...$

WRONG.

Sign Blindness

Ignoring the negative sign attached to a number.

Treating "-10" as just "10".

Calculator Syntax

Typing negative numbers without parentheses.

Inputting -12 instead of (-12). ✓

SPEED CHEAT SHEET

Memorize these to save 30+ seconds.

FRACTION	DECIMAL
1/2	0.5
1/4	0.25
3/4	0.75
1/5	0.2
1/8	0.125

Pro Tip: Don't type 1 ÷ 8 into your calculator. Just know it's 0.125.

YOUR TURN: PRACTICE CHALLENGE

EASY: $15 + 20 \div 4 - 3 \times 2 = ?$

MEDIUM: $(-8) + 24 \div 6 - 1.5 \times 4 + \frac{1}{2} = ?$

HARD: $(-15) + 36 \div 4 - 3.25 \times 2 + \frac{3}{8} - 1 = ?$

Answers: 1. (14) 2. (-1.5) 3. (-9.125)

RECAP

- Scan for PEMDAS first.
- Convert fractions to decimals.
- Watch your negative signs.

ACT Test Prep Specialist
(25+ Years Experience)

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