

ACT & SAT Math: The Two Strategies That Matter Most

Nearly every math question on these tests is multiple choice — which means the answer is already on the page. These two strategies turn that fact into points, especially on problems where setting up the algebra is the hard part.

STRATEGY 1 Plug In the Answers

USE IT WHEN...

- The question asks for **one specific number** — "How many...", "What is x ?", "What was the original price?"
- The answer choices are **plain numbers**, not variables
- Setting up the equation feels harder than the arithmetic would be

HOW IT WORKS

- 1 Notice the answers are listed **in order** (they almost always are — smallest to largest).
- 2 Start with the **middle choice (B or C)**. Treat it as if it were the answer.
- 3 Run it through the problem. Does everything check out?
- 4 If it's **too big**, you've eliminated it *and* everything larger. Too small? Same in the other direction. One test can knock out half the choices.
- 5 Move to the remaining choices until one works exactly.

WORKED EXAMPLE

Marcus has twice as many quarters as dimes. The coins are worth \$4.80 total. How many dimes does he have?

A. 6 B. 8 C. 10 D. 12

Start with B (8 dimes). Twice as many quarters → 16 quarters.

16 quarters = \$4.00 | 8 dimes = \$0.80 → total = **\$4.80** ✓

Answer: B — found on the first try, with zero algebra.

Why start in the middle? Because the answers are in order, a single test tells you *direction*, not just yes/no. Worst case you test three choices. Best case — like above — you're done immediately.

Watch for this: Read carefully what the question is actually asking for. If the problem is about dimes and quarters, make sure you're plugging in the *dimes* and not accidentally testing the quarters. The test writers put the "other" number in the answer choices on purpose.

STRATEGY 2 Replace Variables with Numbers

USE IT WHEN...

- The **answer choices contain variables** (x , n , p , w ...)
- The question says **"in terms of"** — a giant flashing sign for this strategy
- The problem is abstract and you're not sure how to set it up symbolically

HOW IT WORKS

- 1 Pick your own easy number for each variable. Write it down.
- 2 Work the problem using your number. You now have a real, concrete **target number**.
- 3 Plug your number into **every answer choice**.
- 4 The choice that produces your target number is the answer.
- 5 If two choices both match, pick a different number and retest *only those two*.

RULES FOR PICKING GOOD NUMBERS

- ✓ Small and easy to compute with (2, 3, 4, 5)
- ✓ Use 100 for anything involving percent
- ✓ For consecutive integers, start small
- ✗ Never 0 or 1 — they make different expressions look identical
- ✗ Avoid numbers already used in the problem
- ✗ Avoid numbers that make two answers tie

WORKED EXAMPLE — BASIC

A rectangle has width w . Its length is 3 more than twice the width. What is the perimeter, in terms of w ?

- A. $6w + 6$ B. $6w + 3$ C. $4w + 6$ D. $3w + 3$

Let $w = 5$. Length = $2(5) + 3 = 13$.

Perimeter = $2(5) + 2(13) = 10 + 26 = 36$ ← target number

A: $6(5)+6 = 36$ ✓ | B: 33 ✗ | C: 26 ✗ | D: 18 ✗

Answer: A

WORKED EXAMPLE — HARDER

A store raises a price by p percent, then lowers the new price by p percent. The final price is what percent of the original?

- A. 100 B. $100 - p$ C. $100 - p^2/100$ D. $100 + p^2/100$

Let $p = 10$, original price = 100.

Up 10%: $100 \rightarrow 110$. Down 10%: $110 - 11 = 99$ ← target

C: $100 - (100/100) = 100 - 1 = 99$ ✓ | A: 100 ✗ | B: 90 ✗ | D: 101 ✗

Answer: C — and notice the intuitive guess (A: "it goes back to 100") is wrong.

WHICH STRATEGY? A 3-SECOND DECISION

Answers are NUMBERS → Plug In the Answers

- "How many tickets were sold?"
- "What is the value of x ?"
- "What was the original cost?"

Answers have VARIABLES → Replace with Numbers

- "...in terms of n ?"
- "Which expression represents...?"
- "Which must be true for all x ?"

The bigger point: You are not required to solve these problems the way your math teacher would. You are required to *pick the right letter*. These strategies trade a little arithmetic for a lot of certainty — and they work best on exactly the problems that would otherwise cost you the most time.