



Math Tutoring AI

Top 10 SAT Math Questions Most Students Miss — With Solutions

1. System of Equations

Solve $2x + y = 7$ and $x - y = 1$.

Solution: $y = x - 1 \rightarrow 2x + (x - 1) = 7 \rightarrow x = 8/3, y = 5/3$.

2. Function Composition

If $f(x) = 2x + 3$ and $g(x) = x^2$, find $f(g(2))$.

Solution: $g(2) = 4 \rightarrow f(4) = 11$.

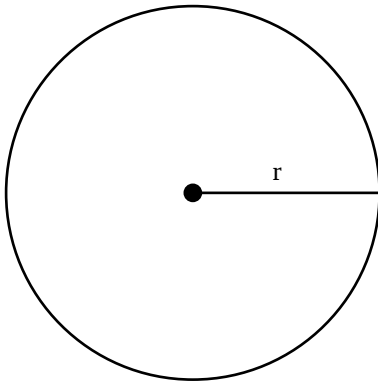
3. Quadratic Equation

Solve $x^2 - 5x + 6 = 0$.

Solution: $(x - 2)(x - 3) = 0 \rightarrow x = 2, 3$.

4. Circle Sector

A circle has radius 6. A sector has central angle 120° . Find the length of the arc and area of the sector.



Solution: $\text{Arc} = (120/360) \cdot 2\pi \cdot 6 = 4\pi$; $\text{Area} = (120/360) \cdot \pi \cdot 6^2 = 12\pi$.

5. Nonlinear System

Solve the system $x+y=5$ and $xy=6$.

Solution: x, y are roots of $t^2 - 5t + 6 = 0 \rightarrow t = 2, 3$.

6. Exponential Growth

Population doubles every year. Start 100 $\rightarrow$ after 3 years?

Solution: $100 \cdot 2^3 = 800$.

7. Absolute Value Inequality

Solve $|2x-3| \leq 5$.

Solution: $-5 \leq 2x-3 \leq 5 \rightarrow -2 \leq 2x \leq 8 \rightarrow -1 \leq x \leq 4$.

8. Data Interpretation

A set has mean 10 for 4 numbers. A fifth number 30 is added. New mean?

Solution: Total=40; new total=70; mean=14.

9. Polynomial Zero

If $f(x) = x^2 - 9$, find zeros.

Solution: $x = \pm 3$.

10. Percent Change

Increase 80 by 25%.

Solution: $80 \times 1.25 = 100$.