

PSAT/NMSQT Math Foundation Worksheet

8 original questions, working space and separate answer explanations. Version 2026-10-27.

Scope

Digital PSAT/NMSQT Math foundations.

This is an untimed foundation study sample, not an official examination or complete mock test. Author-reviewed learning materials; independent educator review and learner calibration remain pending.

How to use this worksheet

Work through the questions before opening the answer section. Write your calculation or the reason for your choice. After checking the explanation, return to the linked lesson for any unfamiliar distinction.

<https://openexam.site/exams/psat-math/worksheets/>

QUESTION 1 / Translate a linear relationship

A school newspaper has 10 subscribers before a campaign. Each classroom visit adds 4 subscribers. After 6 visits, how many subscribers does the model predict?

- A. 84
- B. 34
- C. 240
- D. 24

Working / reasoning:

Item psat-linear-1-1 | Lesson: <https://openexam.site/exams/psat-math/learn/linear/>

QUESTION 2 / Read a quadratic feature

The function $q(x) = (x - 5)(x + 7)$ has two zeros. What is their distance on the number line?

- A. 12
- B. 7
- C. -2
- D. 35

Working / reasoning:

Item psat-quadratic-1-2 | Lesson: <https://openexam.site/exams/psat-math/learn/quadratic/>

QUESTION 3 / Percentages with a clear base

A reading group completes 6 of its 20 planned books. What percentage of the plan has it completed?

- A. 120
- B. $\frac{3}{10}$
- C. 30
- D. 70

Working / reasoning:

Item psat-percent-1-3 | Lesson: <https://openexam.site/exams/psat-math/learn/percent/>

QUESTION 4 / Measure areas and volumes

A square garden has side 9 meters. A square pond inside it has side 5 meters. How many square meters remain outside the pond?

- A. 36
- B. 16
- C. 81
- D. 56

Working / reasoning:

Item psat-measurement-1-2 | Lesson: <https://openexam.site/exams/psat-math/learn/measurement/>

QUESTION 5 / Connect tables and equations

A linear function satisfies $f(1) = 7$ and $f(4) = 22$. What is $f(6)$?

- A. 37
- B. 82
- C. 42
- D. 32

Working / reasoning:

Item psat-relationships-1-2 | Lesson: <https://openexam.site/exams/psat-math/learn/relationships/>

QUESTION 6 / Exponents and nonlinear rules

A culture starts with 7 cells in a model and triples every hour. How many cells does the model predict after 3 hours?

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- A. 63
 - B. 189
 - C. 16
 - D. 21

Working / reasoning:

Item psat-nonlinear-1-2 | Lesson: <https://openexam.site/exams/psat-math/learn/nonlinear/>

QUESTION 7 / Ratios with visible units

A mural uses blue and white paint in a 2:3 volume ratio. If the total is 30 liters, how many liters are blue?

- A. 12
- B. 20
- C. 18
- D. 6

Working / reasoning:

Item psat-units-1-3 | Lesson: <https://openexam.site/exams/psat-math/learn/units/>

QUESTION 8 / Angles, similarity and right triangles

Two angles in a triangle measure 37° and 54° . What is the third angle in degrees?

Your answer: _____

Working / reasoning:

Item psat-triangles-1-4 | Lesson: <https://openexam.site/exams/psat-math/learn/triangles/>

PSAT/NMSQT Math: Answers & Explanations

Compare the method or rule as well as the final answer. These explanations are study aids, not official scoring guidance.

QUESTION 1 / psat-linear-1-1

Answer: 34

1. The campaign adds the same count at each visit.
2. Multiply the per-visit gain by six, then add the initial count.
3. The requested value is 34.

QUESTION 2 / psat-quadratic-1-2

Answer: 12

1. Set each factor equal to zero to obtain the two roots.
2. Subtract the negative root from the positive root to get their distance.
3. The requested value is 12.

QUESTION 3 / psat-percent-1-3

Answer: 30

1. Use the planned count as the whole.
2. Divide completed books by the whole and multiply by one hundred.
3. The requested value is 30.

QUESTION 4 / psat-measurement-1-2

Answer: 56

1. Find the outer square area and the pond area separately.
2. Subtract the pond from the entire garden.
3. The requested value is 56.

QUESTION 5 / psat-relationships-1-2

Answer: 32

1. Compute the change per input unit using the two known points.
2. Move five input units from the first point using that same rate.
3. The requested value is 32.

QUESTION 6 / psat-nonlinear-1-2

Answer: 189

1. There are three complete growth periods.
2. Multiply the initial count by three raised to the third power.
3. The requested value is 189.

QUESTION 7 / psat-units-1-3

Answer: 12

1. The total consists of five ratio parts.
2. Blue accounts for two of those five parts.
3. The requested value is 12.

QUESTION 8 / psat-triangles-1-4

Answer: 89

1. The three interior angles sum to 180 degrees.
2. Subtract both known angles from that total.
3. The requested value is 89.

References and scope notes

The questions and teaching explanations are original catalog materials. References support the selected concepts; they are not endorsements or a reproduced official examination bank.

Math specifications

<https://satsuite.collegeboard.org/k12-educators/about/alignment/math>

400 parameterized questions across 96 families, not 400 independent designs

Selected PSAT/NMSQT foundations, not a complete syllabus or National Merit course

Independent educator review pending; no official score prediction

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