



TEST NINJAS

ACT PRACTICE EXAM

STUDENT PRACTICE BOOKLET

Test Ninjas ACT Math Practice Exam

MATH • INDIVIDUAL ACT SECTION

45

QUESTIONS

1

SECTION

STUDENT NAME

DATE

INSTRUCTOR

PLAN YOUR SESSION

- Choose whether you will use the suggested section times or work without a timer.
- Keep your responses in the section you are currently completing.
- Record one answer per item and make any corrections unambiguous.
- Set the answer materials aside until your practice session is finished.

BOOKLET INFORMATION

SUGGESTED TIMING
50 minutes

USEFUL MATERIALS

Writing tool • calculator for Math if desired • scratch paper

RESULTS

Unofficial practice feedback

SESSION CUE

Begin when your instructor or personal timer is ready.

PUBLICATION NOTE

This booklet is an independently written practice resource. It is not an ACT test form, and results from it are not official scores.

STUDENT INITIALS

PRACTICE ASSESSMENT · 2026 EDITION

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Test Ninjas develops independently written study materials for structured practice, review, and classroom use.

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Timing, content categories, and other exam specifications can change. Treat the booklet and any resulting performance estimate as practice information, not as an official administration or score report.

MATHEMATICS TEST

50 MINUTES—45 QUESTIONS

DIRECTIONS:

Find the quantity or relationship requested in each problem. A calculator may be used when it helps. Treat diagrams as informational sketches unless measurements or scale are explicitly supplied.

- Choose one listed option for each problem.
- Unless an item defines a different set, variables refer to real-number values.
- Check units, restrictions, and the exact quantity requested before recording your response.

Calculator use: Follow the calculator rules set by the person administering your practice session.

Record one response for each item; if more than one choice seems plausible, select the one best supported by the material provided.

1. A concert venue sells tickets in three price tiers. On opening night, they sold 120 VIP tickets at 85 dollars each, 250 regular tickets at 45 dollars each, and 180 balcony tickets at 25 dollars each. If the venue needs to make at least 26,000 dollars to break even, by how much did they exceed or fall short of this goal?

- A. Exceeded by 50 dollars
- B. Fell short by 50 dollars
- C. Exceeded by 500 dollars
- D. Fell short by 500 dollars

2. If $z = 3 - 4i$ and $w = -2 + 5i$, what is the value of $z \cdot w$?

- F. $-6 - 20i$
- G. $6 + 20i$
- H. $14 + 23i$
- J. $-14 - 23i$

3. A circle with center (h, k) passes through the points $(2, 5)$ and $(8, 5)$. If the circle also passes through $(5, 9)$, what is the value of k (to the nearest tenth)?

- A. 1.5
- B. 2.5
- C. 3.6
- D. 5.9

SCRATCH WORK AREA

CONTINUE →

4. The region bounded by $y \leq -2x + 8$, $y \geq x - 1$, and $x \geq 0$ forms a triangular region. What is the area of this region?
- F.** 9.4
G. 12.0
H. 13.5
J. 24.1
5. If $\sin^2 \theta + \sin \theta = 1$, and $0 < \theta < \frac{\pi}{2}$, what is the value of $\cos \theta$?
- A.** $\frac{\sqrt{5}-1}{2}$
B. $\frac{\sqrt{3}}{2}$
C. $\sqrt{\frac{\sqrt{5}-1}{2}}$
D. $\frac{\sqrt{2}}{2}$
6. A bacteria culture doubles every 3 hours. If there are initially 500 bacteria, how many bacteria will there be after 15 hours?
- F.** 8,000
G. 16,000
H. 32,000
J. 64,000
7. A parabola has vertex form $y = 2(x - 3)^2 + 5$. If the parabola is shifted 4 units left and 3 units down, what is the y-coordinate of the new vertex?
- A.** 2
B. 5
C. 8
D. 11

SCRATCH WORK AREA

8. Line m passes through points $(2, 7)$ and $(5, 1)$. Line n is perpendicular to line m and passes through $(4, 3)$. What is the y -intercept of line n ?

F. -3
 G. -1
 H. 1
 J. 3

9. A committee of 4 people is to be selected from 6 men and 5 women. If the committee must include at least 2 women, how many different committees can be formed?

A. 155
 B. 185
 C. 205
 D. 215

10. If $A = \begin{bmatrix} 3 & -1 \\ 2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 \\ -1 & 3 \end{bmatrix}$, what is the element in the first row, second column of AB ?

F. 2
 G. 3
 H. 4
 J. 5

11. Solve for x (round to the nearest tenth):

$$\log_3(x + 2) + \log_3(x - 1) = 2$$

A. 2.1
 B. 2.9
 C. 4.5
 D. 5.0

CONTINUE →

12. Two similar triangles have areas in the ratio 1 : 4.
What is the ratio of their corresponding perimeters?

F. 1 : 1.5
G. 1 : 2
H. 1 : 3
J. 1 : 4

13. A rectangular prism has dimensions $4 \times 6 \times h$. A cylinder with radius 2 and height h is carved out from the center of the prism. If the remaining volume is 60 cubic units and we use $\pi = 3$, what is the value of h ?

A. 3
B. 4
C. 5
D. 6

14. The graph of $y = f(x)$ passes through $(2, 5)$. If $g(x) = -2f(x - 3) + 1$, through which point does the graph of $y = g(x)$ pass?

F. $(-1, -9)$
G. $(2, -9)$
H. $(3, -9)$
J. $(5, -9)$

15. Solve the inequality: $|2x - 7| < 3x + 1$

A. $x > \frac{6}{5}$
B. $x > 2$
C. $x < 2$
D. $x < \frac{8}{5}$

SCRATCH WORK AREA

16. Simplify: $\frac{x^2-4}{x^2-5x+6} \cdot \frac{x-3}{x+2}$

F. $\frac{x-3}{x-2}$

G. 1

H. $\frac{x+2}{x-3}$

J. $\frac{x-2}{x-3}$

17. A circular garden has radius 10 meters. A gardener wants to create a path of uniform width around the garden such that the area of the path equals the area of the original garden. What is the width of the path in meters?

A. 5

B. 10

C. $10(\sqrt{2} - 1)$

D. $20 - 10\sqrt{2}$

18. Test scores in a class have mean 75 and standard deviation 8. If every student's score is increased by 5 points and then multiplied by 1.1, what is the new standard deviation?

F. 8.0

G. 8.8

H. 13.0

J. 13.8

19. A ladder leans against a wall, with its base 6 feet from the wall and its top 8 feet up the wall. If the ladder slides down so its top is 4 feet up the wall, how far is the base from the wall now?

A. $4\sqrt{5}$ feet

B. $6\sqrt{2}$ feet

C. 8 feet

D. $2\sqrt{21}$ feet

CONTINUE →

20. A piecewise function is defined as

$$f(x) = \begin{cases} x^2 - 1 & \text{if } x < 2 \\ 3x + k & \text{if } x \geq 2 \end{cases}$$

If f is continuous at $x = 2$,
what is the value of k ?

- F. -5
 - G. -4
 - H. -2
 - J. -3
21. If x varies directly as y^2 and inversely as $\sqrt{z}$, and $x = 12$ when $y = 2$ and $z = 9$, what is x when $y = 3$ and $z = 4$?
- A. 27.1
 - B. 40.5
 - C. 54.3
 - D. 81.9
22. The first term of a geometric sequence is 3, the fifth term is 48, and the common ratio is positive. What is the sum of the first 6 terms?
- F. 93
 - G. 186
 - H. 189
 - J. 378
23. For a positive real number x , if $x^{3/2} = 64$, what is the value of x ?
- A. 16
 - B. 8
 - C. 32
 - D. 4,096

SCRATCH WORK AREA

24. A company manufactures widgets with the constraint that $x + 2y \leq 100$, where x is the number of Type A widgets and y is the number of Type B widgets. If Type A widgets yield 3 dollars profit each and Type B widgets yield 5 dollars profit each, what is the maximum possible profit?

F. 200 dollars
 G. 250 dollars
 H. 270 dollars
 J. 300 dollars

25. Solve for x : $\sqrt{x+5} + \sqrt{x-3} = 4$

A. 4
 B. 5
 C. 6
 D. 7

26. The point $(3, 4)$ is rotated 90° counterclockwise about the origin, then reflected across the line $y = x$. What are the coordinates of the final image?

F. $(4, 3)$
 G. $(3, -4)$
 H. $(-3, 4)$
 J. $(-4, -3)$

27. Factor completely: $x^3 + 3x^2 - 10x - 24$

A. $(x+2)(x-3)(x+4)$
 B. $(x-2)(x+3)(x+4)$
 C. $(x+2)(x+3)(x-4)$
 D. $(x-2)(x-3)(x+4)$

CONTINUE →

28. In a class of 30 students, test scores are normally distributed with mean 75 and standard deviation 10. Approximately how many students scored between 65 and 85?
- F.** 15
G. 20
H. 24
J. 27
29. If $f(g(x)) = 4x^2 - 12x + 9$ and $g(x) = 2x - 3$, what is $f(x)$?
- A.** x^2
B. $x^2 + 1$
C. $x^2 - 1$
D. $x^2 + 2x$
30. In a 30-60-90 triangle, if the side opposite the 60° angle has length $6\sqrt{3}$, what is the perimeter of the triangle?
- F.** $12 + 6\sqrt{3}$
G. 18
H. 24
J. $18 + 6\sqrt{3}$
31. An ellipse has the equation $\frac{x^2}{16} + \frac{y^2}{9} = 1$. What is the distance between its two foci?
- A.** $2\sqrt{7}$
B. $2\sqrt{5}$
C. $4\sqrt{2}$
D. 5

SCRATCH WORK AREA

32. How many different 4-letter arrangements can be made from the letters in the word STATISTICS?
- F. 240
G. 300
H. 386
J. 420
33. If vector $\vec{u} = \langle 3, -2 \rangle$ and vector $\vec{v} = \langle -1, 4 \rangle$, what is the magnitude of $2\vec{u} - \vec{v}$?
- A. $\sqrt{73}$
B. $\sqrt{85}$
C. $\sqrt{97}$
D. $\sqrt{113}$
34. The graph of $y = \frac{2x-3}{x+1}$ has a horizontal asymptote at $y = a$ and a vertical asymptote at $x = b$. What is $a + b$?
- F. 0
G. 1
H. 2
J. 3
35. The function $f(x) = A \sin(Bx + C) + D$, where $B > 0$, has amplitude 3, period π , phase shift $\frac{\pi}{4}$ to the left, and vertical shift 2 units up. What is the value of B ?
- A. $\frac{1}{2}$
B. 1
C. 2
D. 4

CONTINUE →

36. A data set has the following box plot characteristics: minimum = 12, Q1 = 18, median = 25, Q3 = 30, maximum = 45. What percent of the data falls between 18 and 30?

F. 25%
 G. 50%
 H. 75%
 J. 100%

37. For nonzero real numbers x and y , simplify: $\frac{\frac{x+y}{y} \cdot \frac{y}{x}}{\frac{x^2+y^2}{xy}}$

A. 1
 B. $\frac{xy}{x^2+y^2}$
 C. $\frac{x^2+y^2}{xy}$
 D. xy

38. An inscribed angle in a circle intercepts an arc of 140° . What is the measure of the inscribed angle?

F. 35°
 G. 60°
 H. 70°
 J. 140°

39. If $3^{2x-1} = 27^{x+2}$, what is the value of x ?

A. -5
 B. -3
 C. 5
 D. -7

SCRATCH WORK AREA

40. The average of 5 consecutive odd integers is 23.
What is the largest of these integers?
- F. 25
G. 27
H. 29
J. 31
41. Using synthetic division to divide $2x^3 - 5x^2 + 3x - 7$
by $x - 2$, what is the remainder?
- A. -5
B. -3
C. 3
D. 5
42. A regular hexagon is inscribed in a circle of radius
8. What is the area of the hexagon?
- F. $48\sqrt{3}$
G. $64\sqrt{3}$
H. $96\sqrt{3}$
J. $128\sqrt{3}$

CONTINUE →

43. In a recursive sequence, $a_1 = 3$ and $a_{n+1} = 2a_n - 1$ for $n \geq 1$. What is a_5 ?

- A. 17
- B. 23
- C. 31
- D. 33

44. If $\sin \theta = -\frac{3}{5}$ and $\pi < \theta < \frac{3\pi}{2}$, what is the value of $\cos(2\theta)$?

- F. $\frac{7}{25}$
- G. $-\frac{7}{25}$
- H. $-\frac{24}{25}$
- J. $\frac{24}{25}$

45. A student takes a 50-question multiple choice test where each question has 4 choices. If the student guesses randomly on every question, what is the expected number of correct answers?

- A. 12.5
- B. 15.5
- C. 20.0
- D. 25.5

SECTION COMPLETE · 2

Pause here and wait for the cue to begin the next section.
During timed practice, do not revisit a section after leaving it.



QUICK REFERENCE

Answer Key

Correct responses by section

MATH · MATH SECTION

1 B	2 H	3 D	4 H	5 C	6 G	7 A	8 H	9 D
10 G	11 B	12 G	13 C	14 J	15 A	16 G	17 C	18 G
19 D	20 J	21 B	22 H	23 A	24 J	25 A	26 G	27 A
28 G	29 A	30 J	31 A	32 H	33 D	34 G	35 C	36 G
37 A	38 H	39 D	40 G	41 A	42 H	43 D	44 F	45 A

TEST NINJAS ACT PRACTICE

Math: Number Correct to Scale Score

Find your total number correct in this 45-question Test Ninjas section, then read across to the estimated 1–36 scale score. Wrong answers do not subtract points.

Math Practice Conversion

45 questions · 41 operational-question curve

NUMBER CORRECT OF 45	ESTIMATED SCALE SCORE	NUMBER CORRECT OF 45	ESTIMATED SCALE SCORE
45	36	22	19
44	36	21	19
43	35	20	18
42	34	19	17
41	34	18	17
40	33	17	17
39	33	16	17
38	32	15	16
37	31	14	16
36	30	13	15
35	29	12	15
34	29	11	15
33	28	10	14
32	27	9	14
31	27	8	13
30	26	7	13
29	25	6	12
28	25	5	12
27	24	4	11
26	23	3	9
25	22	2	7
24	21	1	5
23	20	0	1

How this estimate is calculated: ACT’s enhanced Math practice curve scores 41 operational questions, while this booklet presents 45 questions and does not identify field-test items. Each total correct is therefore projected proportionally to 41 scored questions, rounded to the nearest raw point, and converted with ACT’s published practice curve. The result is useful for practice planning but is not an official ACT score.



TEST NINJAS PRACTICE ASSESSMENT

End of Practice Assessment

Your practice booklet is complete. Check your work only after the timing conditions you selected have ended.

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