

SAT Nonlinear Equations and Systems Worksheet

Name: _____ Date: _____

Circle one answer for each question. Use the blank space for calculations. A calculator is allowed.

1. What are the solutions to $x^2 - 7x + 10 = 0$?

- A. -5 and -2
- B. -2 and 5
- C. 2 and 5
- D. 1 and 10

2. What are the solutions to $|x - 4| = 9$?

- A. 13 only
- B. 5 and 13
- C. -13 and 5
- D. -5 and 13

3. What are all solutions to $2x^2 = 8x$?

- A. 0 and 4
- B. 4 only
- C. -4 and 4
- D. 0 and -4

4. What value of x satisfies $\sqrt{x+5} = 4$?

- A. -1
- B. 3
- C. 11
- D. 21

5. What is the solution to $\frac{6}{x-1} = \frac{3}{x-4}$?

- A. -2
- B. 3
- C. 5
- D. 7

6. How many distinct real solutions does $2x^2 - 4x + 5 = 0$ have?

- A. Zero
- B. Exactly one
- C. Exactly two
- D. Infinitely many

7. Which point (x, y) is a solution to the system of equations $x^2 + y^2 = 25$ and $y = x + 1$?

- A. $(0, 5)$
- B. $(3, 4)$
- C. $(4, 3)$
- D. $(-3, -2)$

8. What are all values of x that satisfy $x = \sqrt{3x + 10}$?

- A. -2 only
- B. -2 and 5
- C. 5 only
- D. 2 and 5

9. What is the larger solution to $x^2 - 6x + 4 = 0$?

- A. $-3 + \sqrt{5}$
- B. $3 + \sqrt{5}$
- C. $3 + \sqrt{13}$
- D. $6 + 2\sqrt{5}$

10. In the xy -plane, the graphs of $y = x^2 + 6x$ and $y = c$ intersect at exactly one point, where c is a constant. What is the value of c ?
- A. -9
B. -3
C. 0
D. 9
11. What value of x satisfies $\frac{x}{x-3} = \frac{3}{x-3} + 2$?
- A. 0
B. 3
C. 6
D. No value of x satisfies the equation.
12. The graphs of $y = x^2 - 2x - 3$ and $y = -x + k$ in the xy -plane intersect at a point with x -coordinate 4 , where k is a constant. What is the x -coordinate of the other intersection point?
- A. -4
B. -3
C. 3
D. 9