

Geometry Pretest

Directions: This test is to assess your knowledge of Algebra I material. There is not a passing grade, the final decision regarding placement will be left to the parent. Students are not permitted to use a calculator on any part of the test. Work all of the following problems *on a separate piece of paper*. **Show ALL work.** Express all answers in simplest form, leaving radicals where necessary. Write a “?” next to any question which covers unfamiliar material. Answers are available to parents on request or tests may be mailed to the tutor for grading and input.

Time limit: One hour.

DO NOT WRITE ON THIS TEST.

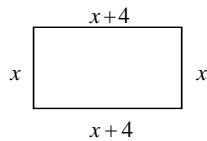
1. Fill in the blank with a less than, equal to, or greater than symbol: -8.2 _____ -8.02 .
2. True or false: The number $\sqrt{121}$ is irrational.
3. Solve:
$$5a + b = 2$$
$$a = b - 8$$
4. Find the product: $-3(-2)(-7)$
5. Write as a quotient without a square root in the denominator: $\sqrt{\frac{3}{x}}$
6. Find the quotient: $x-1 \overline{)2x^3 - 3x^2 - 3x + 4}$
7. Divide and simplify: $\frac{\sqrt{126}}{\sqrt{7}}$
8. Simplify: $\frac{4}{\frac{1}{2} - \frac{1}{3}}$
9. The formulas for the circumference and area of a circle are $C = 2\pi r$ and $A = \pi r^2$. Find the exact area of a circle whose circumference is 10π .
10. Write as a fraction in simplest terms: $\frac{x^5}{5} \cdot \frac{x^2}{2}$
11. Simplify: $(-k)(-k^2n)(3kn^2)$
12. The cube root of 17 is approximately 2.5713. Round this number to the nearest hundredth.
13. If there is a 7% tax on clothing, find the final cost on a suit that costs \$175.
14. Write in scientific notation: 793,000.
15. Simplify: $(x^3)^4$
16. Solve for x : $x^2 - 14x + 24 = 0$

17. Reduce to lowest terms: $\frac{3x}{9xy}$

18. Factor: $3x^2 + 7x + 4$

19. A collection of dimes and quarters is worth \$6.75. The number of dimes is four less than three times the number of quarters. How many of each are there? (*Only an algebraic solution will be accepted.*)

20. Express the perimeter of this rectangle in simplest form:



21. Find the value of the polynomial $4x^2 - 3x + 2$ if $x = -3$

22. Write as a fraction in simplest terms: $\frac{a}{2} - \frac{b}{6}$

23. Find the greatest common factor of 70 and 42.

24. Factor $9x^2 - y^2$

25. Express as an integer: $\sqrt{(-7)^2}$

26. Find the value of $2x - 3y$ if $x = -4$ and $y = -2$.

27. Factor 126 into a product of primes.

28. Find the product: $(x-1)(x^2 + 2x + 2)$

29. Simplify: $\sqrt{3} + \sqrt{48}$

30. Write as a fraction in simplest terms: $\frac{2}{x} + \frac{2}{y}$

31. Simplify: $(5x)^3$

32. Jane walks from a pond to the top of a mountain at the rate of 2 miles per hour and down again at the rate of 3 miles per hour. The entire hike takes five hours. How far is it from the pond to the top of the mountain?

33. Simplify: $7\sqrt{2} - \sqrt{2}$

34. Factor $3x^4 + 6x^3$.

35. Reduce to lowest terms: $\frac{x+2}{3x+6}$

36. Which of the following four fractions is not equal to the others? $\frac{2}{7}$, $-\frac{2}{7}$, $\frac{-2}{-7}$, or $-\frac{-2}{7}$?
37. Solve for x : $3(2x + 1) = 4(3 - x)$
38. Find four consecutive even integers whose sum is 124. (*Only an algebraic solution will be accepted.*)
39. Solve for x : $(x - 1)(x + 2) = x^2 + 9$
40. Solve for x : $\frac{x}{4} - 1 = \frac{x}{12}$
41. Solve for x : $5x - 8 = -2x + 6$
42. Write 4^{-3} without using any exponents.
43. What value(s) of x would make the denominator of the fraction $\frac{x - 9}{x^2 - 4}$ equal to zero?
44. What is the slope of the line having the equation $y = x + 5$?
45. Simplify: $x \div \frac{1}{x^3}$
46. Simplify: $\frac{x^2}{x - y} - \frac{y^2}{x - y}$
47. Simplify: $x^2 \cdot \frac{2}{x}$
48. Multiply: $(3x + 7)(3x - 7)$
49. What is the degree of the polynomial $6x^2 - x^3 + 5$?
50. Write in simple radical form: $\sqrt{75}$
51. Between what two consecutive integers does $\frac{22}{7}$ lie?
52. What values of x will make the product $6x(x + 5)$ equal to zero?