

Math 115
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Practice problems for Test 1.

Overview: In order to succeed at Precalculus, you will need strong algebraic skills. These skills are reviewed briefly and used extensively in this class, but you are expected to have these skills when you enter the class – that is, algebra is prerequisite to Precalculus. Therefore, the first test is designed to test some of the skills that I expect you to have. In order to solve these problems, you will have to practice, and then practice some more.

So that you know what you are practicing for, I will explain a bit about Test #1. Test #1 will be different from all subsequent tests in:

- a.) *Structure.* The first test will contain 10 equations for you to solve: 2 linear, 2 quadratic, 2 radical, 2 literal equations, and 2 rational equations. Examples of linear equations are practice problems #1 and #8, quadratic: #2 and #9, radical: #5 and #10, literal #6 and #7, and rational #3 and #4.
- b.) *Practice.* The attached problems are sample problems like those that will be on the test. The practice problems are similar but are not exactly like those the test will contain.
- c.) *Grading.* Accuracy is very important in math – especially in areas that are prerequisite to this course. Therefore, no partial credit will be given on the first test.
- d.) *Calculators.* Calculators will be allowed on most (if not all) subsequent tests, however they will not be allowed on Test #1.

Warning: Be sure to check all answers – not every ‘solution’ actually works. This is especially important because you will receive no credit for a problem in which you list too many or too few solutions. If there is no answer that satisfies the equation, write “no solution.”

Practice Problems for Test #1:

1. $\frac{5x}{6} - \frac{7x}{15} = 1 + \frac{3x}{10}$
2. $-4x^2 = 9x$
3. $\frac{1-x^2}{x} = \frac{1}{x} + 4x$
4. $\frac{6-k}{6k} = \frac{1}{k+1}$
5. $p + \sqrt{4p+1} = 5$
6. $\frac{1}{m} + w = \frac{c}{m}$, solve for m .
7. $W = I^2R$, solve for I .
8. $1 - [1 - (1 - x)] = x - [x - (x - 1)]$
9. $(2n+1)(n-1) = (n-1)(n+5)$
10. $\sqrt{2x} - \sqrt{x+1} = 0$
11. $3 + \sqrt{4x+1} = 0$
12. $a - \frac{10}{3} = \frac{a-10}{3}$
13. $(2z-7)^2 = 25$
14. $\frac{1}{x} - \frac{x}{x-1} = \frac{2x-3}{x^2-x}$
15. $\sqrt{6x-1} = 1$
16. $S = \frac{n}{2}(A+L)$, solve for L .

17. $5z + 2(3z - 1) = -1 - 5(z - 3)$

18. $(c + 3)(c - 4) = 2$

19. $\frac{1}{x} - \frac{2}{x} = 3$

20. $l = \frac{gp^2}{4\pi^2}$, solve for g .

21. $(2y - 5)^2 = 13y$

22. $1 + \frac{2}{b-1} = \frac{2}{b^2 - b}$

23. $\frac{2}{3} = \frac{x-2}{15}$

24. $3n^2 = 75$

25. $9x^2 + 16 = 0$

26. $\frac{4}{y} - 3 = \frac{5}{2y+3}$

27. $3(2x - 3) + 5 = 1 - [8 - 2(1 + 2x)]$

28. $m = \frac{2xy}{x+y}$, solve for x .

29. $A = 2w^2 + 4lw$, solve for w .

30. $\sqrt{2x+2} - \sqrt{x+2} = 1$

31. $\sqrt[3]{3x+4} = 3$

32. $-2(t - 5) - 1 = 5t + 7(1 - t)$

33. $\frac{3}{y} - \frac{5}{y-1} = \frac{3-2y}{y^2-1}$

34. $\frac{at+bt}{m} = y$, solve for t .

35. $\frac{6x+20}{4} = 3 + \frac{5x}{6}$

36. $k(k+7) = k(3-k) - 2$

37. $\frac{2x+11}{x+4} + \frac{x-2}{x-4} = \frac{12}{x^2-16} + \frac{7}{2}$

38. $\sqrt{w} + \sqrt{w+3} = 3$

39. $A = \frac{(B+b)}{2} \cdot h$, solve for B .

40. $7 - 2x = -(3x - 2) + 2(x - 5)$

41. $3 - \frac{(x+2)^2}{4} = \frac{x^2}{4} + 7x$

42. $2 - \frac{1}{y-2} = \frac{y-3}{y-2}$

43. $x = 2 + \sqrt{x-2}$

44. $V = \frac{1}{3}\pi \cdot r^2 h$, solve for h .

45. $-3(2 - 2x) = 6x - 30$

46. $2c^2 + 7c = (2c - 3)(c + 5)$

47. $\frac{3}{4a-8} - \frac{2}{3a-6} = \frac{1}{36}$

48. $2\sqrt{x} = \sqrt{3x+4}$

49. $H = kt - \frac{gt^2}{2}$, solve for k .

50. $\sqrt{2x+6} - \sqrt{x+4} = 1$