

Math 105.01 Spring 2007 KS#0 Pre-Requisite Knowledge Survey Instructions

Completing this Pre-requisite Knowledge Survey will help you gauge your knowledge of pre-requisite material and focus your attention on parts of such material you may need to review. In this knowledge survey, you won't actually try to answer any of the questions provided. Instead, you will rate (on a four-point scale) your confidence to answer the items based on your present knowledge. There are no right or wrong answers. Hence, merely by fully completing this self-knowledge survey you will receive the full points available for this "quiz".

What constitutes a successful response to this survey is an accurate self-assessment, one that neither overestimates nor underestimates the knowledge that you now have. Accurate self-assessment is a practical skill that is very important to intellectual development. Do your best to provide a very honest assessment of your present knowledge. If you mark "CC" (Completely Confident) or a "GC" (Generally Confident) you are essentially stating that you believe you have significant background to answer the question: you should be confident that if some professor asks you to demonstrate that ability, you could actually respond well for graded test purposes. For the purposes of judging your confidence level, assume that were you to actually work the problems you would be in a testing situation (closed book, no calculator, no tables, etc.)

Read each question then mark the appropriate response of **CC**, **GC**, **PC** or **NC** for your level of confidence to answer the items based on your present knowledge. appropriate response in accord with the following rating descriptions. These markings of **CC**, **GC**, **PC** or **NC** will go quickly after you get the hang of responding based on confidence.

CC: (Completely Confident)

You could produce a solution that would demonstrate a full understanding of the problem and could identify specific techniques, methods or procedures to solve the problem. Your solution would be complete and accurate. **In short, you would "jump off a bridge" if you got anything in the solution wrong!**

GC: (Generally Confident)

You could produce a solution that would demonstrate some understanding of the problem and could generally identify specific techniques, methods or procedures that might solve the problem. That is, your solution would be generally correct, but may contain a few minor flaws. **When you got your grade on this one, you would be surprised and slap your head when you saw you did things you should have known better! (i.e. You could have had a V8!)**

PC: (Partially Confident)

You might be able to produce a solution that would demonstrate a slight understanding of the problem. Any attempted solution you try would probably have some correct aspects but there would probably be one or more major flaws. **You recognize the face, but can't place the name!**

NC: (Not at all Confident)

You probably would not be able to solve the problem or couldn't identify a specific technique, method or procedure that might solve the problem. Or, you would not be able to produce a response at all. **If this were your hand in a poker game, you would fold!**

Circle your appropriate level of confidence in your ability to solve each problem according to the descriptions previously provided.

1. Solve the quadratic equation $x^2 - 8x = 9$ for x .
CC: 20 GC: 10 PC: 3 NC: 0 Count: 33 CC+GC: 30 Percent: 90.91%
2. Combine and simplify $(15x^3 - 8x^2 + 3x - 5) + (7x^3 - 12x^2 + 5x - 7)$.
CC: 23 GC: 8 PC: 2 NC: 0 Count: 33 CC+GC: 32 Percent: 96.97%
3. Find the vertex of the parabola $y = x^2 - 16x + 48$.
CC: 10 GC: 7 PC: 10 NC: 6 Count: 33 CC+GC: 17 Percent: 51.52%
4. Simplify $7 - 5x + 9(3x - 2)$.
CC: 23 GC: 9 PC: 1 NC: 0 Count: 33 CC+GC: 32 Percent: 96.97%
5. Reduce and simplify $\frac{x^2 - 4x + 4}{x^3 - 8}$.
CC: 11 GC: 13 PC: 8 NC: 1 Count: 33 CC+GC: 24 Percent: 72.73%
6. Solve $3x - 3 = -5x - 11$.
CC: 22 GC: 8 PC: 3 NC: 0 Count: 33 CC+GC: 30 Percent: 90.91%
7. Solve $\frac{1}{x+4} = \frac{1}{x} + \frac{1}{2}$.
CC: 9 GC: 11 PC: 12 NC: 1 Count: 33 CC+GC: 20 Percent: 60.61%
8. Multiply and simplify $3yz^4(8y^2z^2 - 3yz + 2y)$.
CC: 13 GC: 12 PC: 7 NC: 1 Count: 33 CC+GC: 25 Percent: 75.76%
9. Solve the following system to find the x -value of the solution: $\begin{cases} 4x + 12y = 8 \\ 2x + y = 9 \end{cases}$.
CC: 16 GC: 10 PC: 6 NC: 1 Count: 33 CC+GC: 26 Percent: 78.79%
10. If $f(x) = 5x^2 - 4x + 2$ find $f(3)$.
CC: 24 GC: 5 PC: 3 NC: 1 Count: 33 CC+GC: 29 Percent: 87.88%
11. Solve the inequality $5 - \frac{x}{3} > 2$.
CC: 15 GC: 9 PC: 5 NC: 4 Count: 33 CC+GC: 24 Percent: 72.73%
12. Find the domain for $y = \sqrt{12 + 3x}$.
CC: 9 GC: 10 PC: 7 NC: 7 Count: 33 CC+GC: 19 Percent: 57.58%
13. Evaluate and simplify $|2/3|^{-3}$.
CC: 9 GC: 10 PC: 9 NC: 5 Count: 33 CC+GC: 19 Percent: 57.58%

14. Simplify and express your answer using positive exponents: $(15y^{-6})(4y^3)$.
CC: 10 GC: 8 PC: 7 NC: 8 Count: 33 CC+GC: 18 Percent: 54.54%
15. Multiply and simplify: $(2 - 3x)(5x^2 + 2x - 4)$.
CC: 18 GC: 12 PC: 3 NC: 0 Count: 33 CC+GC: 30 Percent: 90.91%
16. Factor completely: $4x^3 - 4x - 3$.
CC: 14 GC: 11 PC: 7 NC: 1 Count: 33 CC+GC: 25 Percent: 75.76%
17. Factor completely: $16a^7 - 40a^6 + 25a^5$.
CC: 14 GC: 13 PC: 6 NC: 0 Count: 33 CC+GC: 27 Percent: 81.82%
18. Factor completely: $x^3 + 20x^2 + 5x + 100$.
CC: 10 GC: 14 PC: 9 NC: 0 Count: 33 CC+GC: 24 Percent: 72.73%
19. Find all solutions to $x^4 - 5x^2 - 36 = 0$.
CC: 6 GC: 11 PC: 13 NC: 3 Count: 33 CC+GC: 17 Percent: 51.52%
20. The smaller of two consecutive odd integers is subtracted from twice the larger, the result is 19 Find the larger integer.
CC: 9 GC: 8 PC: 10 NC: 6 Count: 33 CC+GC: 17 Percent: 51.52%
21. Solve for x : $\frac{7}{x} - \frac{5}{y} = \frac{3}{z}$.
CC: 4 GC: 12 PC: 12 NC: 5 Count: 33 CC+GC: 16 Percent: 48.48%
22. Evaluate using scientific notation: $\frac{3.9 \times 10^{12}}{1.3 \times 10^5}$.
CC: 8 GC: 11 PC: 11 NC: 3 Count: 33 CC+GC: 19 Percent: 57.58%
23. Find the intercepts and graph: $5x - 6y = -30$.
CC: 14 GC: 7 PC: 7 NC: 5 Count: 33 CC+GC: 21 Percent: 63.64%
24. Solve the quadratic inequality: $x^2 + 5x - 6 < 0$.
CC: 9 GC: 14 PC: 6 NC: 4 Count: 33 CC+GC: 23 Percent: 69.70%
25. Subtract and simplify $\frac{8}{x^2 + 64} - \frac{x}{x^2 + 64}$.
CC: 9 GC: 13 PC: 8 NC: 3 Count: 33 CC+GC: 22 Percent: 66.67%

26. Graph the solution set of $6x + 2y \leq 6$.
CC: 7 GC: 11 PC: 11 NC: 4 Count: 33 CC+GC: 18 Percent: 54.54%
27. Simplify $\frac{1 + \frac{1}{x-4}}{1 - \frac{6}{x+3}}$.
CC: 4 GC: 10 PC: 11 NC: 8 Count: 33 CC+GC: 14 Percent: 42.42%
28. Simplify $(27/125)^{-2/3}$.
CC: 5 GC: 10 PC: 10 NC: 8 Count: 33 CC+GC: 15 Percent: 45.45%
29. Combine and simplify $\sqrt{72} - \sqrt{18} + \sqrt{32}$.
CC: 10 GC: 8 PC: 13 NC: 2 Count: 33 CC+GC: 18 Percent: 54.54%
30. Solve $x + 3 = \sqrt{2x + 5}$.
CC: 7 GC: 12 PC: 9 NC: 5 Count: 33 CC+GC: 19 Percent: 57.58%
31. Solve $(x + 2)^{1/3} = 3$.
CC: 8 GC: 11 PC: 9 NC: 5 Count: 33 CC+GC: 19 Percent: 57.58%
32. What is the total number of degrees in the sum of the three angles of a triangle?
CC: 29 GC: 4 PC: 0 NC: 0 Count: 33 CC+GC: 33 Percent: 100.00%
33. If the two legs of a right triangle have lengths of 2 and 5, what is the length of the hypotenuse?
CC: 26 GC: 4 PC: 3 NC: 0 Count: 33 CC+GC: 30 Percent: 90.91%
34. Determine the area of a circle with radius 2.
CC: 21 GC: 10 PC: 2 NC: 0 Count: 33 CC+GC: 31 Percent: 93.94%
35. Graph $x^2 + y^2 = 1$.
CC: 12 GC: 10 PC: 11 NC: 0 Count: 33 CC+GC: 22 Percent: 66.67%
36. Determine the distance between the points $(-1, 3)$ and $(2, 5)$.
CC: 19 GC: 5 PC: 8 NC: 1 Count: 33 CC+GC: 24 Percent: 72.73%