

## Tompkins Cortland Community College – Mathematics Placement Program

### MATH 201 (Calculus I) Qualifying Test -

### Practice Problems Answer Sheet

Don't look at this sheet till you've worked all the test problems to the best of your ability. Then score yourself using the answers below.

Next to each answer you'll find the concept(s) that the question tested. To prepare for the real pretest, consult any textbook or tutor for that topic, and work some practice problems to bring your abilities up to snuff.

---

#### Answers:

#### Math Concept:

1.  $x^{-\frac{1}{2}}$

exponents, radicals

2.  $x^2 + 6x + 8$  (any order) or  $(x + 4)(x + 2)$

functional notation, multiplying binomials

3.  $f\left(\frac{4\pi}{9}\right) = -\frac{\sqrt{3}}{2}$

trigonometric function evaluation

4.  $f(g(x)) = 4x^2 - 8x + 5$

functional notation, function composition

5.  $f'(x) = (x - 3)^2 + 7$

inverse functions

6.  $\pm 3$

domain, factoring

7.  $\frac{-8}{(x+5)(x-3)}$

rational expressions

8.  $y = -\frac{2}{5}x - \frac{8}{5}$

linear equations

9.  $x = \frac{1}{2}$

rational equations

10.  $x = \frac{5\pi}{6}, \frac{11\pi}{6}$

trig values, inverse trig functions

11.  $x = 0, \frac{1}{2}, \text{ or } \frac{5}{4}$

factoring, polynomial equations

12.  $(-5, 5)$

completing the square, quadratics