

# AMS 151.1 Applied Calculus I

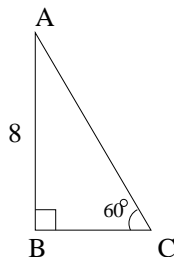
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## Prerequisite Practice Test

**IN ORDER TO RECEIVE FULL CREDIT, PLEASE SHOW ALL WORK AND EXPLAIN YOUR REASONING.**

**NO CREDIT WILL BE GIVEN FOR A NUMERICAL ANSWER WITHOUT SOME WRITTEN EXPLANATION.**

1. Find the equation of the line through the points  $(1, 3)$  and  $(3, 1)$ .
2. Find the equation of the line through the point  $(2, 3)$  and with slope 2.
3. Solve this equation for  $t$ :  $y = A + C/(2 - t)$
5. The inequality  $\frac{|3-x|}{2} \leq 4$  describes an interval on the line. Find that interval.
6. Find all real numbers  $x$  satisfying  $x^2 + 3x > 10$
7. What is the area of the triangle bounded by the lines  $y = 2x$ ,  $y = -3x + 15$ , and the  $x$  axis.
8. Let  $f(x) = x^2 - 1$  and let  $g(x) = \frac{(x+1)}{(x+2)}$ . Determine  $f(g(0))$  and  $g(f(0))$ .
9. Find all numbers  $x$  satisfying  $1/(x + 2) + 1/x = 1$ .
10. Find  $x$  satisfying  $22x = 8(x + 1)$ .
11. What is  $\sin(5\pi/4)$ ?
12. Calculate the area of the following right angle triangle where angle  $ABC$  is a right angle, angle  $ACB$  is 60 degrees, and edge  $\overline{AB}$  measures 8cm. What is the length of hypotenuse  $\overline{AC}$ ?



13. What is the area of the triangle bounded by the lines  $y = 2x$ ,  $y = -3x + 15$ , and the  $x$  axis.
14. A population of bacteria grows by 30% every 6 hours. If there are 10 milligrams of bacteria at noon on Tuesday, write an expression for how much there will be at noon on Wednesday.
15. Find  $x$  satisfying  $\log_{10}(3x) - \log_{10}(2x^3) = 2$ .