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Exam II
June 08, 2009

To receive full credit all your answers should be carefully justified. Each solution must be the student's own work.

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1. Find the distance between the points $(-3, 4)$ and $(1, 2)$.

2. Characterize the graph of

$$x^2 + y^2 - 10x + 4y + 19 = 0$$

3. Determine the equation of the line passing through the points $(-1, 4)$ and $(1, 3)$.

4. Determine the equation of the line that contains the point $(4, -1)$ and that is parallel to the line given by the equation $2x - 3y + 1 = 0$.

5. Find $(f \circ g)(x)$ and $(g \circ f)(x)$, if $f(x) = -\sqrt{2}$ and $g(x) = x^2 - 1$.

6. Find the x-intercepts of the graph of $y = 4x^2 + 2x - 1$.

7. If an object is thrown upward from the top of an 80 ft tall building with an initial velocity of 48 ft per sec, determine its maximum altitude.

8.

(a) What is $\log_6 \frac{1}{36}$?

(b) Simplify $7^{3 \log_7 2}$.

9. Rewrite the following as a single logarithm and then simplify.

$$2 \log_b(x^2/y) - 3 \log_b x + \log_b y$$

10. Given that $\log_7 2 = 0.3562$, $\log_7 3 = 0.5646$, and $\log_7 5 = 0.8271$, what is the value of $\log_7 \frac{5}{6}$?