MATH 141, FALL 2015, Sample Precalc Probelms

1) Find an equation of a line that passes through the point $(3, 1)$ and has y-intercept -1.

2) Let $g(x) = (x - 1)^2$ and $f(x) = \sqrt{x} + 1$. Write a formula for $(g \circ f)(x)$.

3) Find the numerical value of $e^{-\ln(0.5)}$.

4) Find all solutions of the equation $\sin(x) \cos(x) = \sin^2(x)$ in the interval $[\pi, 2\pi]$.

5) Solve the equation $2\sqrt{x} = x - 15$.

6) Solve the equation $\ln(x) + \ln(3x - 1) = 0$.

7) Reduce the following expression: $\left(\frac{v^8 t^4}{v^3 t^5}\right)^{-1/2}$.

8) Is the following equality true: $(a + 2b)^2 = (a - 2b)^2 + 4ab$?

9) Rewrite and simplify using only sines and cosines of argument x: $\sin^2(2x) \tan(x) \cos^3(x)$.

10) Give the value of $\tan(\pi/3)$.