

# Reference Solution to Problem Set 1

November 7, 2011

1. (a) 2nd order of degree 1

(b) 3rd order of degree 1

(c) 1st order of degree 1

(d) 1st order of degree 1

3. (4)  $\frac{1}{3} \arctan \frac{y+9x}{3} = x + C$

(5)  $y^2 + 36x^2 = C$

(7)  $y = c(\sin \pi x)^{\frac{1}{\pi}}$

(8)  $\frac{y}{y+2} = Cx$

(9)  $y = \tan(C - \frac{e^{-\pi x}}{\pi})$

(10)  $\frac{y^2}{2} = -2x^2 + \frac{9}{2}$

(12)  $1 + (\frac{y}{x})^2 = 5x$

(14)  $(\frac{y}{x})^2 = 2 \sin x^2$

(17)  $y = 4 \ln x$

(19)  $y = \sqrt{\ln(x^2 - 2x + e)}$