Week 13 Worksheet

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1. Find the area bounded between the following curves.
   (a) $x = -2$, $x = 1$, $y = 2x^2 + 5$, $y = 0$.
   (b) $x = 2$, $x = 4$, $y = \frac{x-1}{4}$, $y = \frac{1}{x-1}$.
   (c) $y = x^5 - 2\ln(x+5)$, $y = -2\ln(x+5)$.
   (d) $x = 0$, $x = 3$, $y = e^x$, $y = e^{4-x}$.
2. Use implicit differentiation to find a formula for dy/dx in each of the following. (Your answer may include both x and y.)
   (a) $6x^2 + 5y^2 = 36$.
   (b) $3x^2 = \frac{2-y}{2+y}$
   (c) $10\sqrt{x} + 6\sqrt{y} = 8y$.
3. Find the equation of the tangent line at the given point on each curve.
   (a) $x^2 + y^2 = 25$ at $(-3, 4)$.
   (b) $x^2y^2 = 81$ at $(-1, 9)$.