Functions worksheet 4

1. Consider the function $C(\alpha, x) = x + (1 - x)\alpha$, where $x \in (0, 1)$.

(a) Solve $C(\alpha, x) = t$ for α.

(b) Use your solution to calculate α when $x = 0.55, t = 0.82$. Label your solution α^*.

(c) Write out $C(\alpha^*, x)$

(d) Using the α^* you found in (b), plot $y = x$ and $y = C(\alpha^*, x)$ over $x \in [0, 1]$ (with x on the horizontal axis)

2. Solve for x:

(a) $2x = y$

(b) $x^3 = y$

(c) $4x - 1 = y$

(d) $(4x - 1)^3 = y$

(e) $\ln(x) = y$

(f) $\exp(x) = y$

(g) $2^x = y$

(h) $2^x + 1 = y$

3. Plot with x on the horizontal axis:

(a) $y = \ln(x)$ and $y = \exp(x)$

(b) $y = 4x - 1$ and $y = \frac{1}{4}x + \frac{1}{4}$