Problem 5

a) You are indifferent between receiving A for sure and 0.9 B and 0.1 C
You are indifferent between receiving A for sure and 0.6 B and 0.4 D
∴ You prefer lottery D over lottery C.

b) $u(A) = 0.9u(B) + 0.1u(C)$
$u(A) = 0.6u(B) + 0.4u(D)$

$$u(C) = \frac{u(A) - 0.9u(B)}{0.1} \qquad u(B) = \frac{u(A) - 0.4u(D)}{0.6}$$

$$u(B) - u(C) = \frac{u(A) - 0.9u(B)}{0.1} - \left(\frac{u(A) - 0.4u(D)}{0.6}\right)$$

c) $u(B) = 1 \quad u(C) = 0$

$$u(A) = 0.9 + 0 = 0.9 \qquad u(D) = \frac{0.9 - 0.6}{0.4} = 0.75$$