

Q1.7

$$\frac{e_1 \Downarrow v \quad e_2 \Downarrow v_2}{(e_1, e_2) \Downarrow (v_1, v_2)} \quad (\text{pair})$$

$$\frac{e_1 \Downarrow (v_1, v_2) \quad [v_1/x][v_2/y]e_2 \Downarrow v}{\text{let } (x, y) = e_1 \text{ in } e_2 \text{ end: } v} \quad (\text{match})$$

Q2.1

$$FV(Fst\ z) = Fst(FV\ z)$$

$$FV(Snd\ z) = Snd(FV\ z)$$

Q2.2

$$[e'/x](Fst\ z) = Fst([e'/x]z)$$

$$[e'/x](Snd\ z) = Snd([e'/x]z)$$