$V_{in1} = 0$

$$\frac{V_{o1}}{V_{in2}} = \frac{V_{ds5}}{V_{gs5}} \cdot \frac{V_{d2}}{V_{g2}} = A_{d21}$$

$$\frac{V_{o2}}{V_{in2}} = \frac{V_{d6}}{V_{g6}} \cdot \frac{V_{s1}}{V_{d1}} \cdot \frac{V_{s2}}{V_{g2}} = A_{d11}$$

$$V_{o1} = A_{d21} \cdot V_{in2} + A_{d11} \cdot V_{in1}$$

$$V_{o2} = A_{d21} \cdot V_{in1} + A_{d11} \cdot V_{in2}$$

$$V_{o2} - V_{o1} = A_{d21} \cdot V_{in1} + A_{d11} \cdot V_{in2} - A_{d21} \cdot V_{in2} - A_{d11} \cdot V_{in1}$$

$$V_{o2} - V_{o1} = A_{d21}(V_{in1} - V_{in2}) - A_{d11}(V_{in1} - V_{in2})$$

$$\frac{V_{o2} - V_{o1}}{V_{in1} - V_{in2}} = A_{d21} - A_{d11} = g_{m5} \cdot r_{di7} \cdot \frac{g_{m2}}{g_{m3}} \left(\frac{1}{1 + g_{m1} \cdot r_{di7}} - 1 \right)$$

$$= g_{m5} \cdot r_{di7} \cdot (-1.4)$$

2)