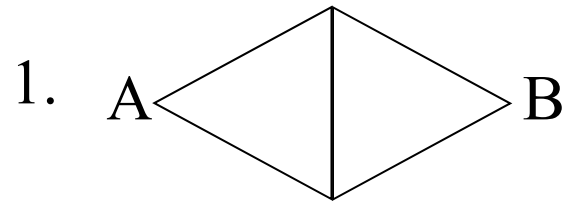
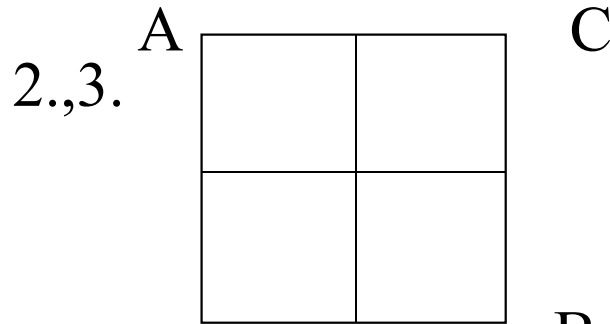


合成抵抗の計算



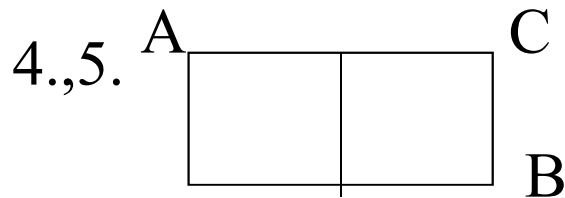
1辺の抵抗を r とするときA-B間およびA-C間の合成抵抗を求めよ。

ヒント 対称性を利用する。

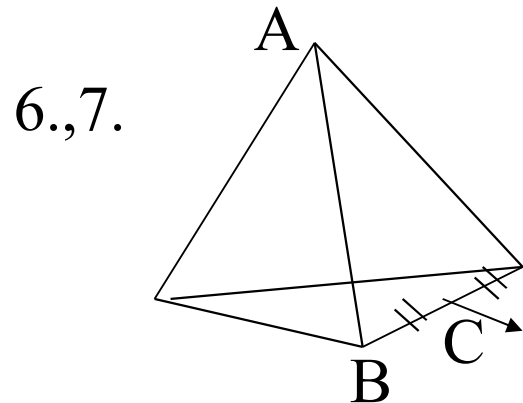


(1)電位が等しい点同志は切り離しても、また接続しても電流分布は変わらない。

(2)電流分布の対称性を利用して未知数を減らす。

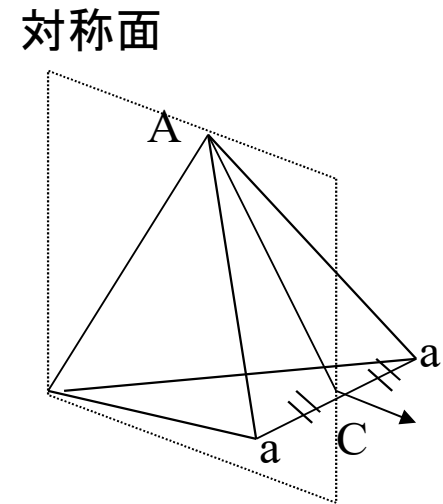
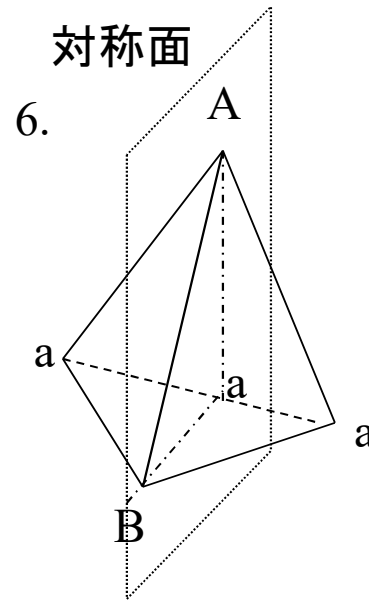
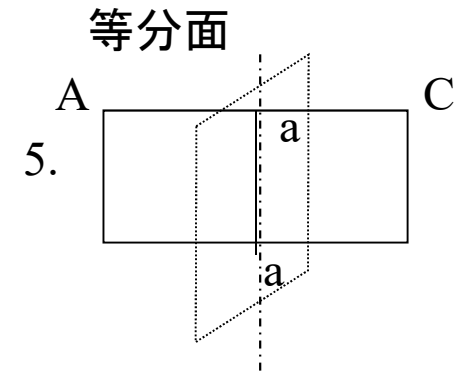
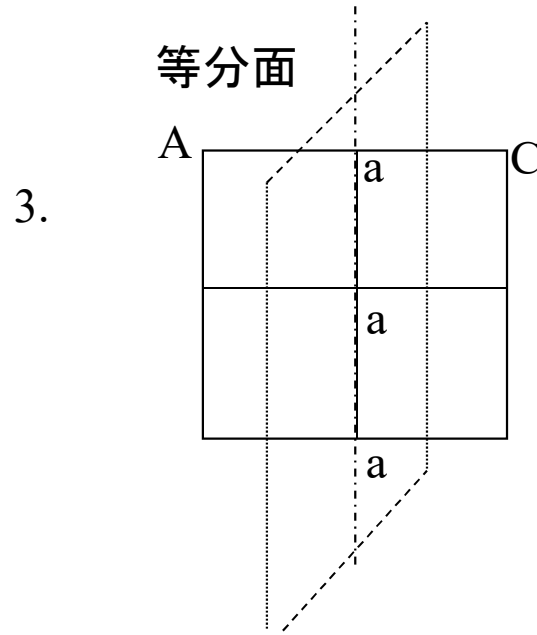
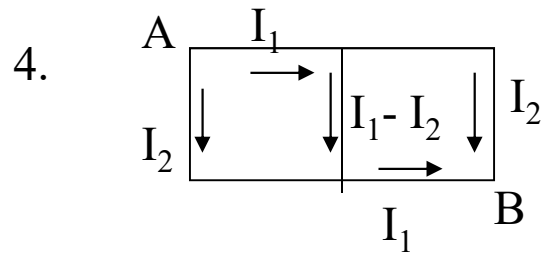
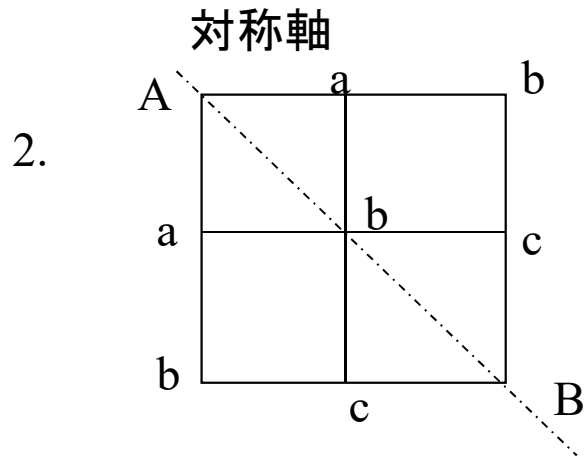
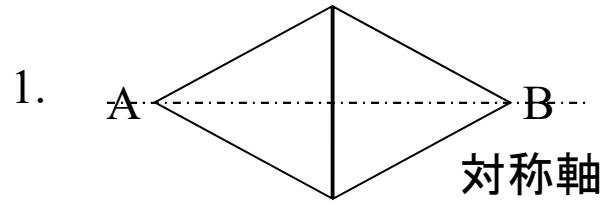


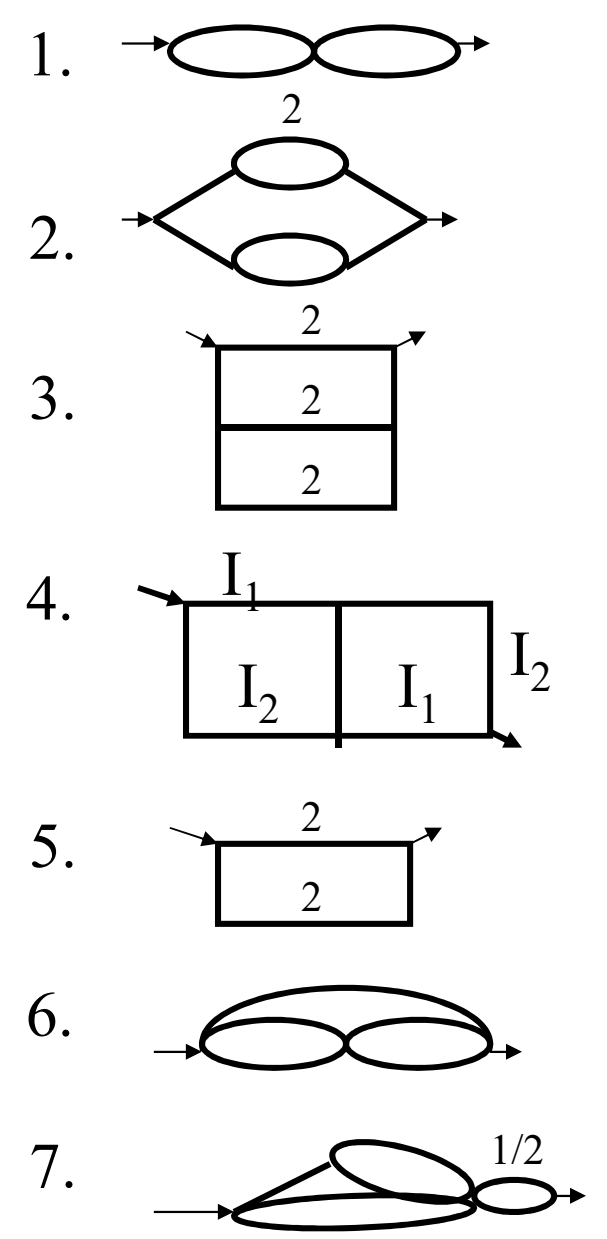
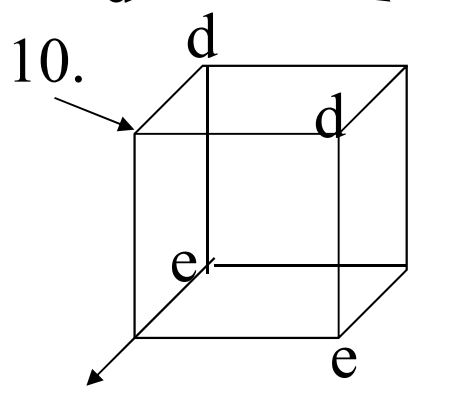
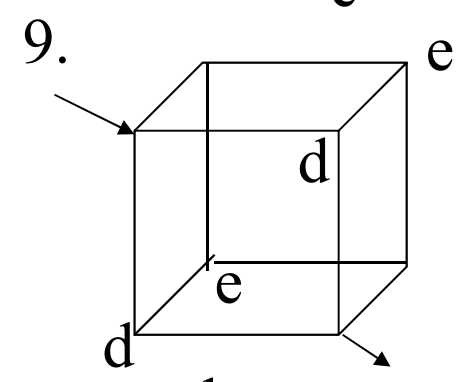
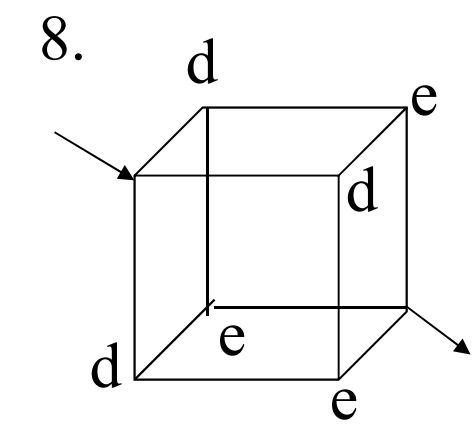
ポイントは始終点を含む「対称軸または面」、または始終点に垂直な「等分面」の発見です。「対称軸」「対称面」に関し互いに鏡像関係にある点は同電位。



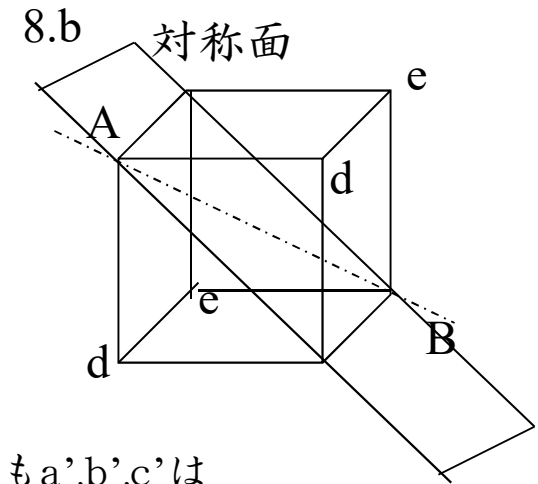
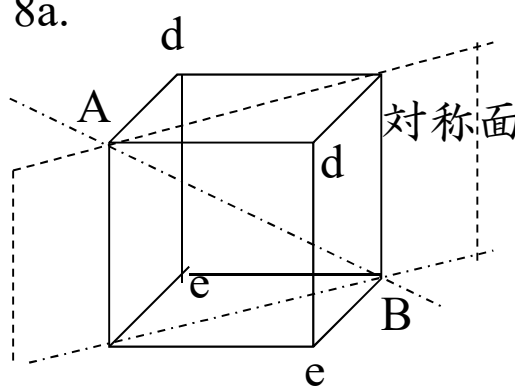
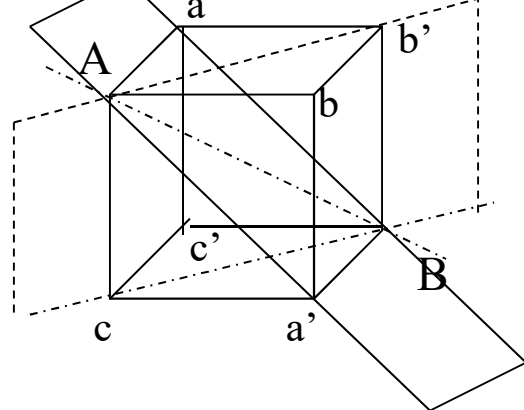
「等分面」上の点は同電位。答えは下(逆さ)

1. r , 2. $3r/2$, 3. $5r/4$, 4. $7r/5$,
5. $4r/3$, 6. $r/2$, 7. $5r/8$

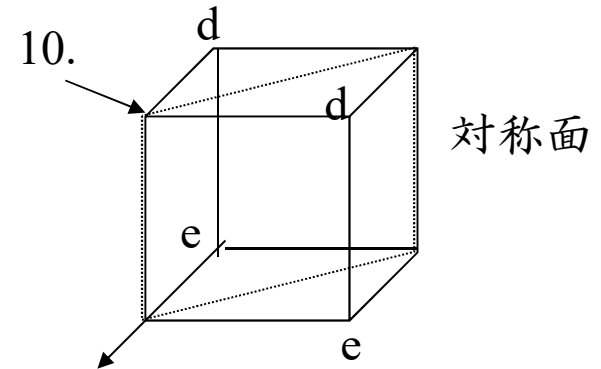
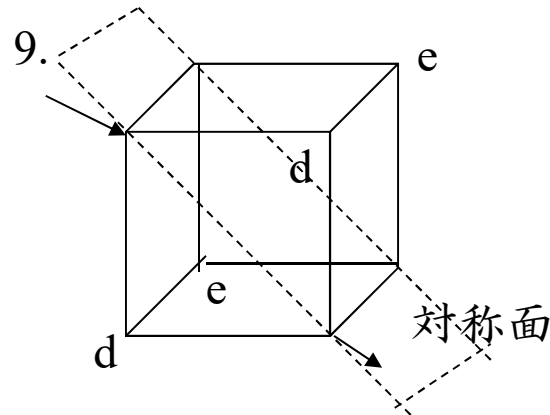


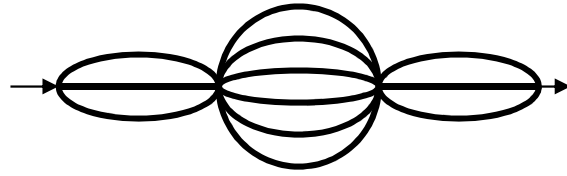


8 対称面は3つあるうちの二つ

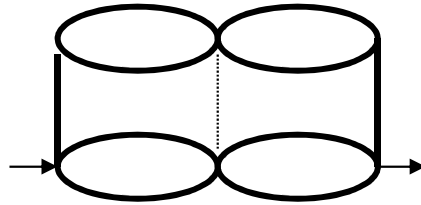


別解. AからBを見てa,b,cは対称点、BからAを見たときもa',b',c'は対称点。→3つのd, 3つのeが対称となる。

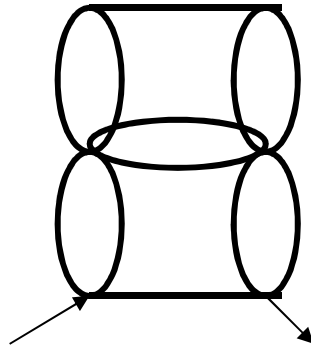




5r/6



3r/4



7r/12