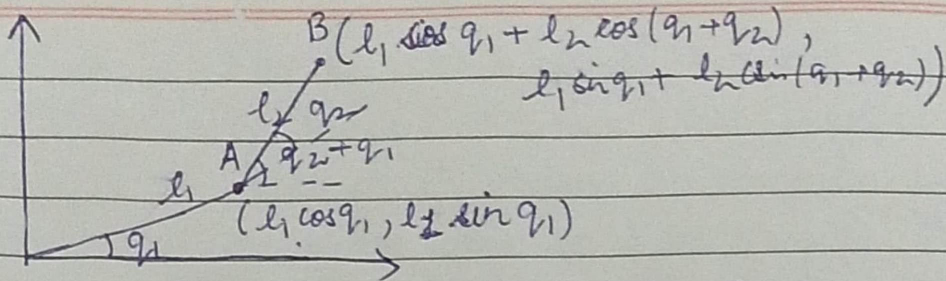

Assuming q_1 to be acute always

Cases

1) Straight arm

In this case $q_2 + q_1 = q_1$

$\therefore q_2 = 0$

A: $(l_1 \cos q_1, l_1 \sin q_1)$

B: $(l_1 \cos q_1 + l_2 \cos q_1, l_1 \sin q_1 + l_2 \sin q_1)$

: $((l_1+l_2)\cos q_1, (l_1+l_2)\sin q_1)$

And q_2 has to be zero obviously on increasing q_1 the x coordinates will obviously decrease and y will increase for both the points

If $l_1 = l_2 = 1$

A: $(\cos q_1, \sin q_1)$

B: $(2\cos q_1, 2\sin q_1)$

2) Visibly bend If $l_1 = l_2 = 1$

$q_2 \neq 0^\circ$ but $0^\circ < q_2 < 180^\circ$

A: $(l_1 \cos q_1, l_1 \sin q_1) = (\cos q_1, \sin q_1)$

B: $(\cos(q_1+q_2) + \cos(q_1), \sin(q_1) + \sin(q_1+q_2))$

On changing q_2

Increasing q_2 makes no change to A but for both the x coordinate would decrease, y would increase

B: $\left(2\cos\left(\frac{q_2}{2}\right)\cos\left(q_1+\frac{q_2}{2}\right), 2\sin\left(q_1+\frac{q_2}{2}\right)\cos\left(\frac{q_2}{2}\right)\right)$

On increasing q_1 B A and B: x coordinate decreases y increases

~~B: till $90^\circ = q_1 + \frac{q_2}{2}$~~ till $q_1 + \frac{q_2}{2} = 90^\circ$

~~A and B then it decreases~~

then it depends

3) Folded

$$q_1 \neq 0^\circ \quad q_2 = 180^\circ$$

$$A: (\cos q_1, \sin q_1)$$

$$B: (\cos q_1 + \cos(180^\circ + q_1)\}, \sin q_1 + \sin(180^\circ + q_1))$$

$$: (\cos q_1 - \cos q_1, \sin q_1 - \sin q_1)$$

$$: (0, 0)$$