$S_0 = 75$, $r_f = 6\%$ $T = 3$ months

$u = 10\%$ yearly $d = \frac{1}{u}$, $K = 72$

Can you compute Asian call option using Binomial model?

Show your work.

Exotic Options

American, Asian

Barrier options, call on a call, call on a put etc. Quanto options

up and out currency options

cease to exist if it goes above a prefixed barrier: H.

similarly down and out;

up and in, down and in etc.

becomes valid when the underlying asset price goes above certain predefined level..

similar for down and in.

Currency options

$$S_0 = \frac{P_{0In} \longrightarrow P_{tIN} \overset{exp}{=} P_{0I} e^{r_I t}}{P_{0US} \longrightarrow P_{tUS} = P_{0U} e^{r_U t}}$$

$$\Rightarrow S_t \overset{exp}{=} S_0 e^{(r_I - r_u)t}$$

$$\Rightarrow \text{distn of } S_t = N\left(\left((r_I - r_u) - \frac{\sigma^2}{2}\right)t, \sigma^2 t\right)$$

going through Binomial argument.

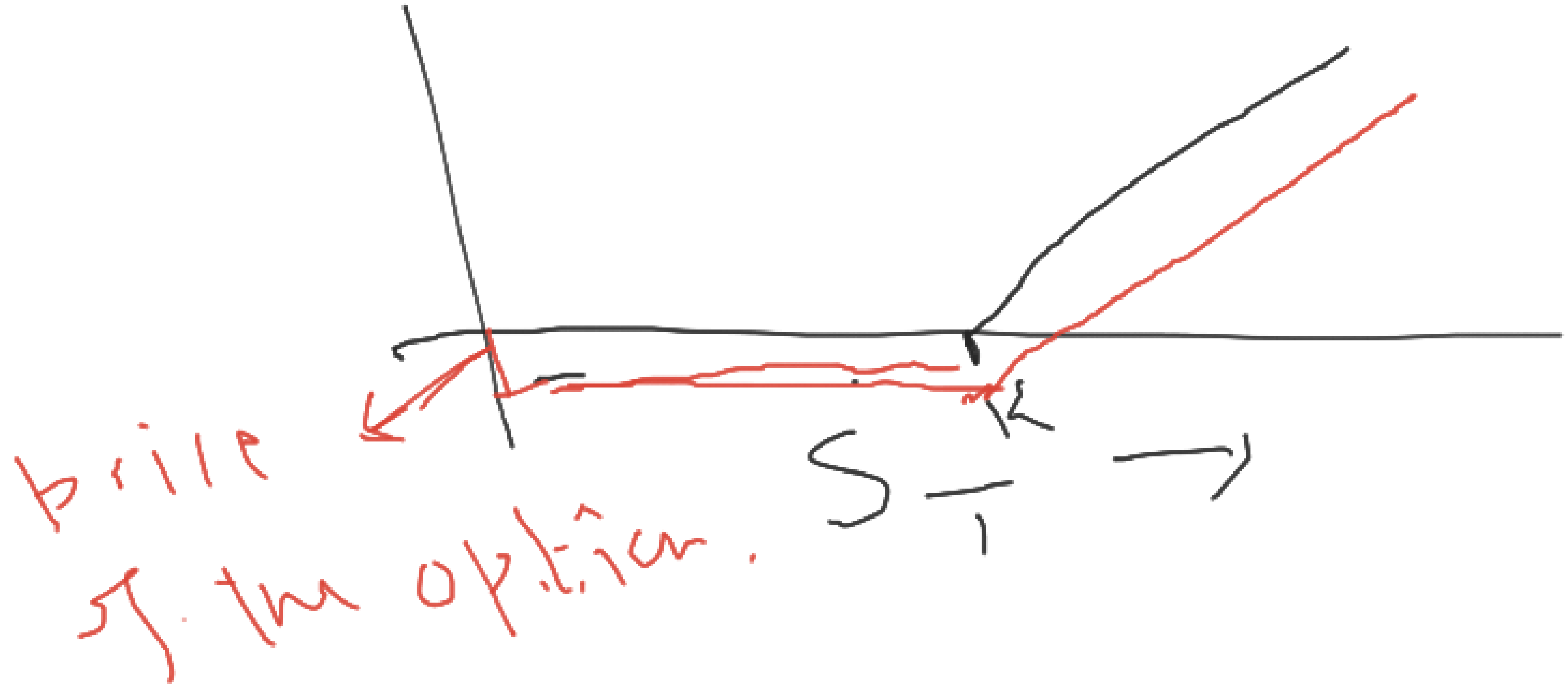
where σ is volatility of currency price.

Trading Strategies

1) Bull market

Buy a call

$K = S_0 \ldots$

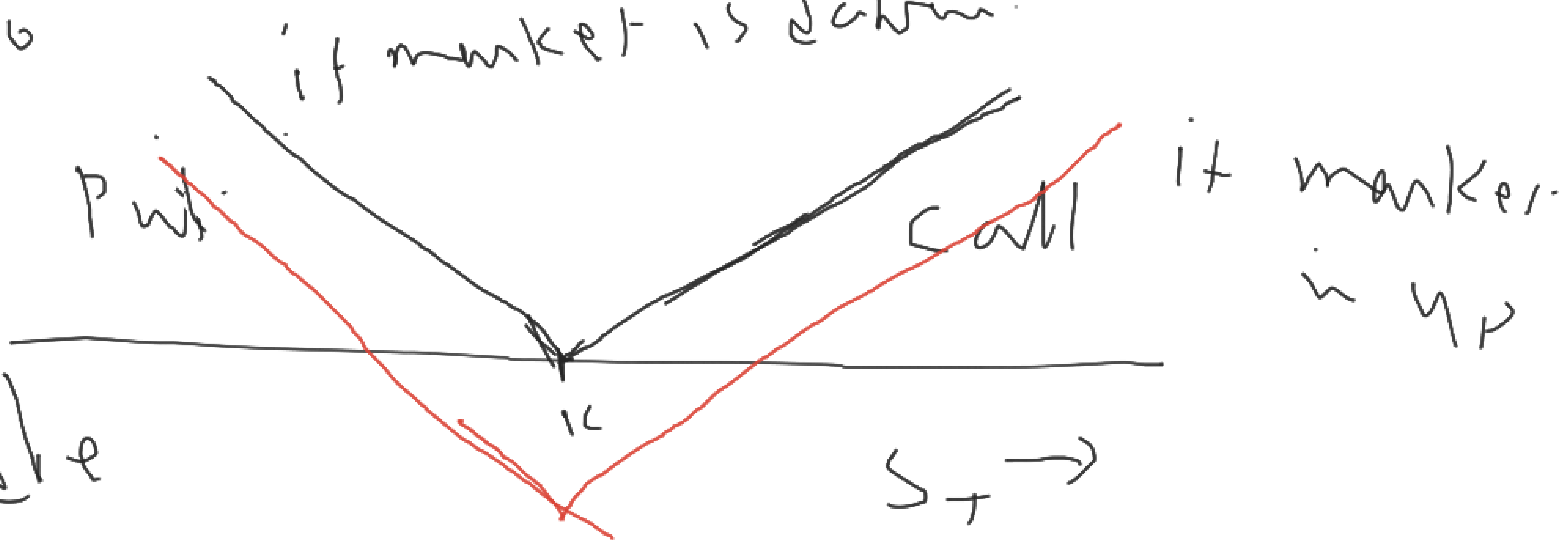


2) Bear market

Buy a put at $K = S_0$

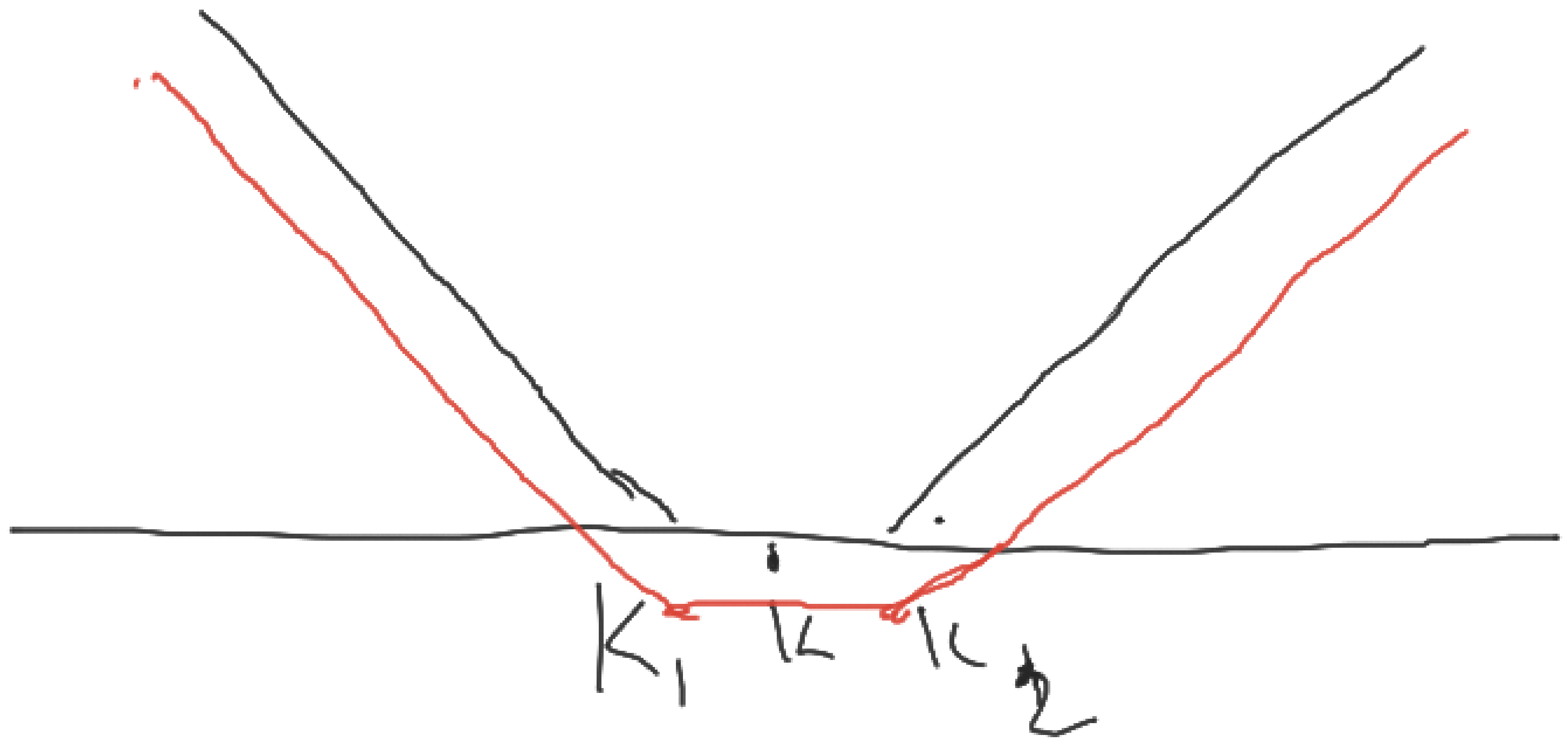
3) Volatile market

Buy a call and a put at the same price with $K = S_0$



Straddle

Strangle (Volatile market)



$K = S_0$.

K_1

Buy a Put with strike price K_1
" " Call " " K_2

4) Bull market

Butterfly Spread

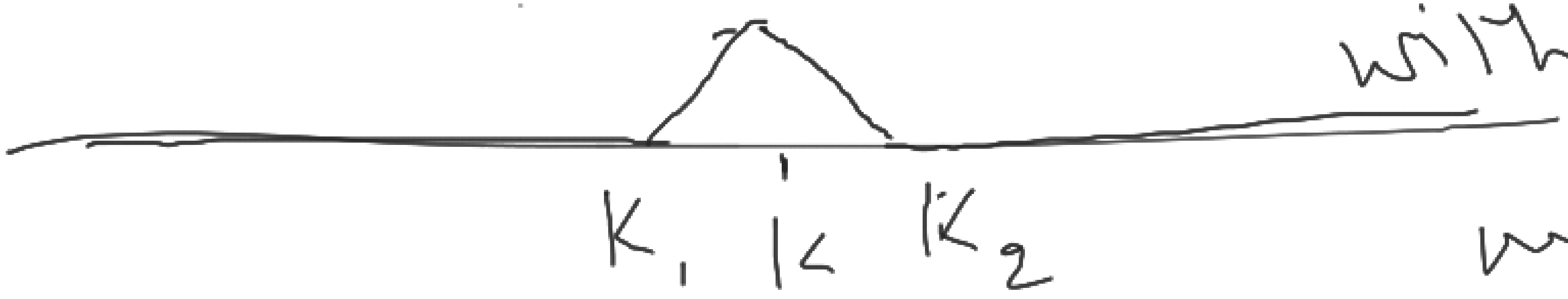
$K = S_0$

Write a Put with K_1

another with K_2

and sell

Buy two Put with strike price K.



HW

1) Find initial cash flow or gain

2) Draw the profit line.

Today's problem sent in time by Maitreya, Sagnik and Nirmalya. Their work will be marked. Others work won't be marked, as they have sent past the time!