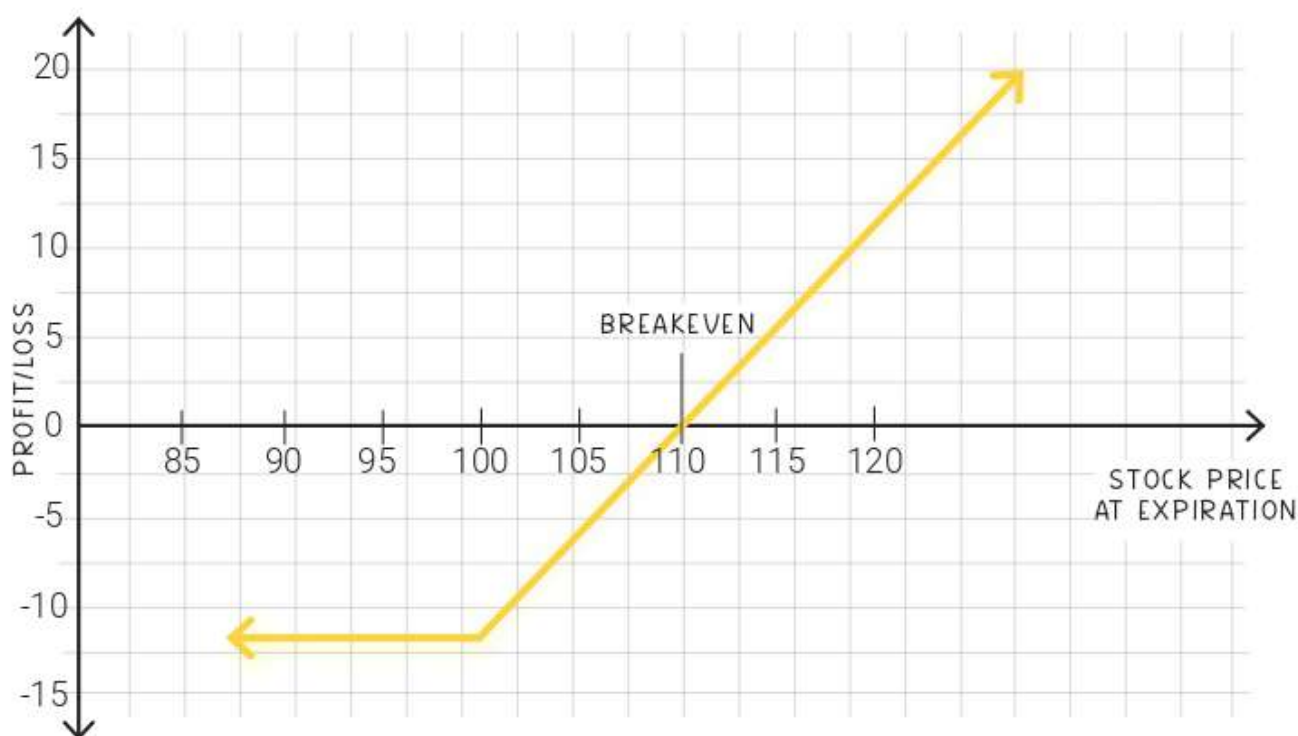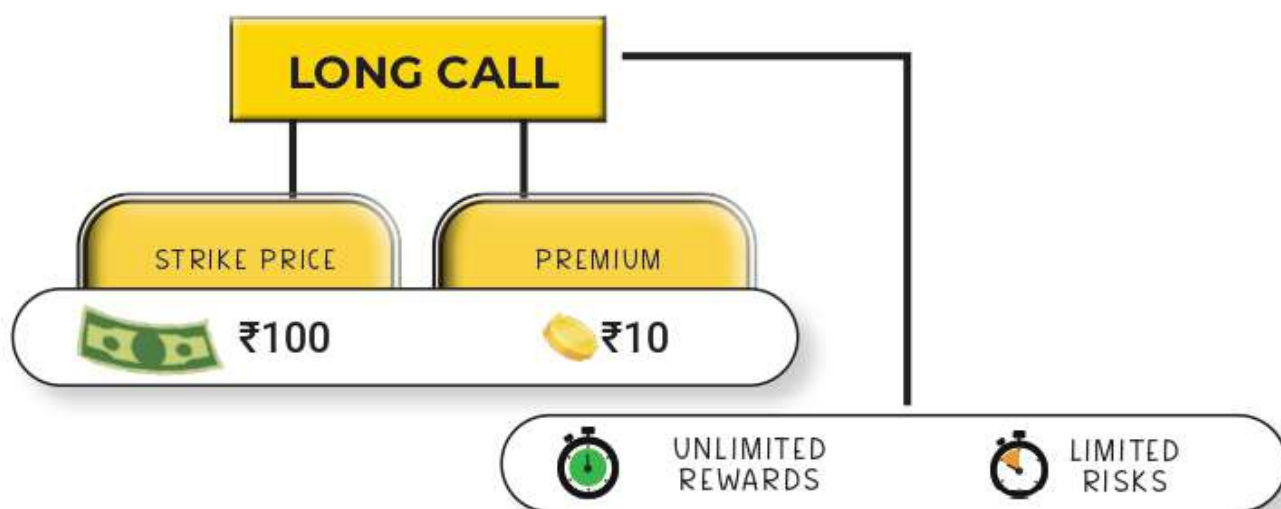# 6.2 UNDERSTANDING PAYOFF CHARTS FOR CALL OPTIONS

PAY-OFF FOR CALL BUYER

Suppose that Mr. X buys a call option at a Strike price of ₹100 and pays a premium amount of ₹10 for the same.

LONG CALL

STRIKE PRICE	PREMIUM
₹100	₹10

UNLIMITED REWARDS

LIMITED RISKS

In the graph above, we have Profit or Loss on the Y-axis and Price of the Stock at the expiration on the X-axis.

Now, this premium amount of ₹10 is Mr. X's outflow and also the maximum loss value. As the price would increase beyond the strike price of 100, the seller will have to start making a payment of the value Exercise Price - Strike Price. However, till the time entire premium is not covered, the option buyer will be in loss. We can see in the graph that there comes a break-even point and if the price of the option continues to increase after that, the buyer will enjoy the profits.
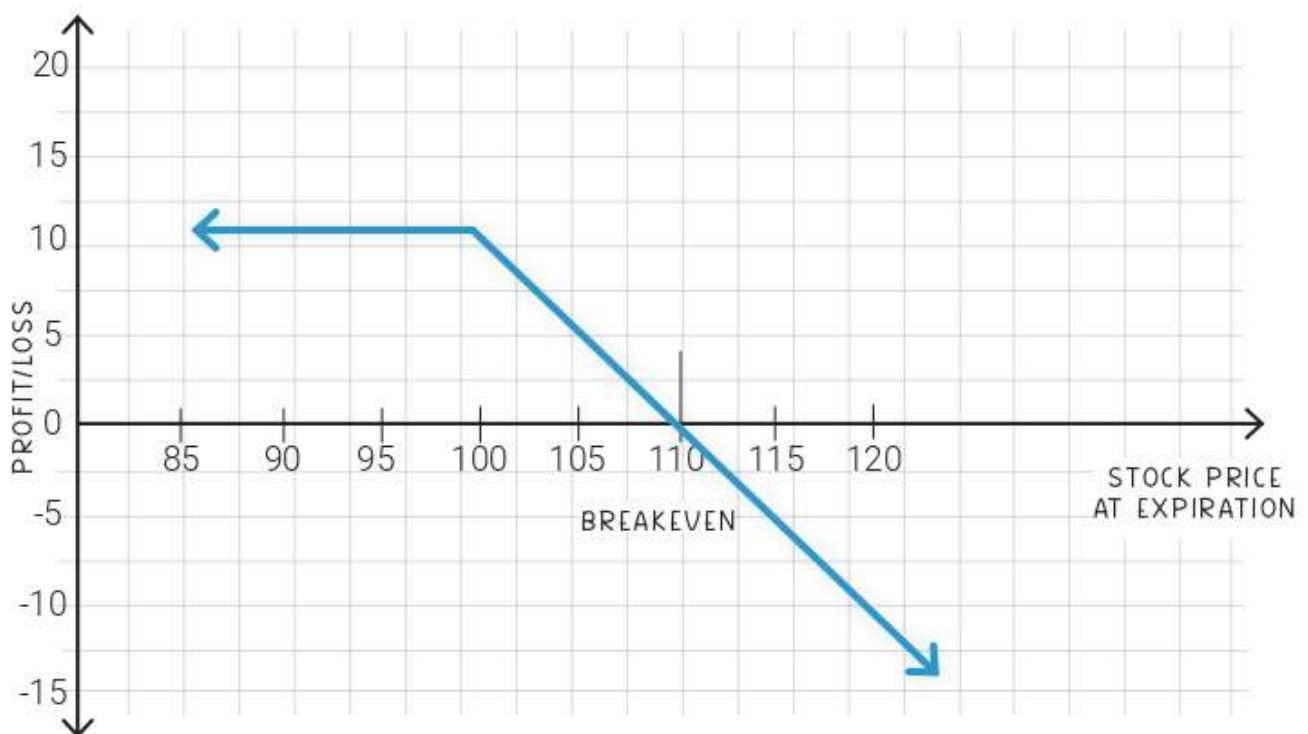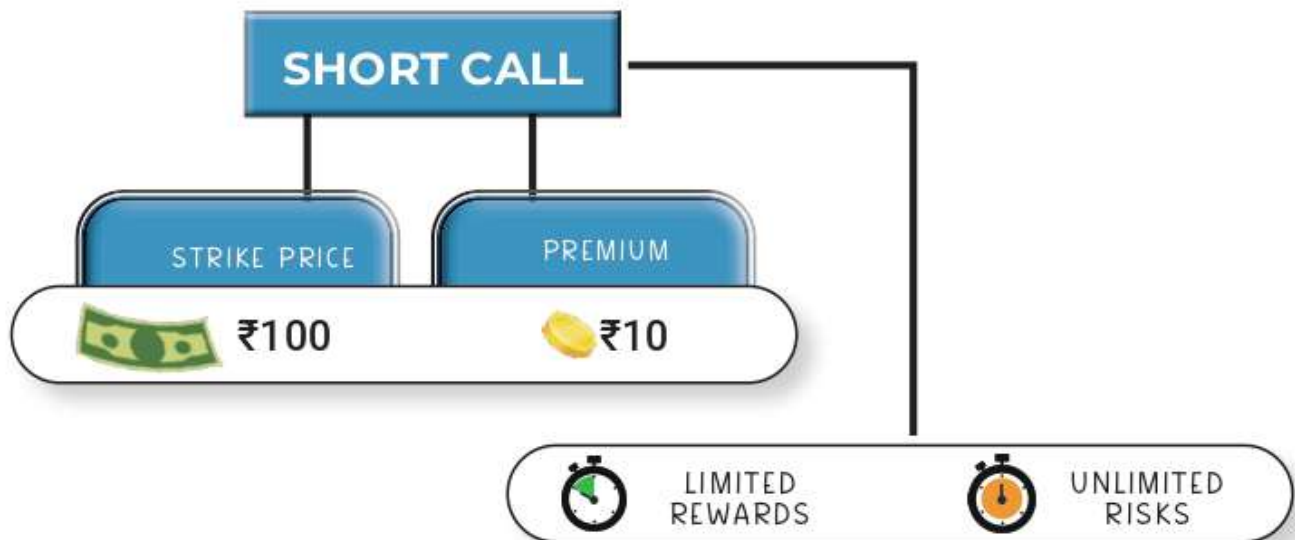
CURRENT MARKET PRICE (CMP)	CMP - STRIKE PRICE - PREMIUM = PROFIT/ LOSS	REMARKS
₹90	₹90 - ₹100 - ₹10 = (~~₹20~~) (₹10)	Loss of Premium because the buyer will not excercise the option.
₹100	₹100 - ₹100 - ₹10 = (₹10)	The buyer will still incur a loss of the value of premium as the option will not be exercised.
₹105	₹105 - ₹100 - ₹10 = (₹5)	Losses will decrease as price continues to rise above the strike price.
₹110	₹110 - ₹100 - ₹10 = ₹0	Buyer is standing at no profit no loss point i.e. Breakeven point.
₹120	₹120 - ₹100 - ₹10 = ₹10	Profit
∞		∞

THE BUYER CAN HAVE UNLIMITED PROFITS AS THE PRICE OF THE UNDERLYING ASSET CAN INCREASE TO ANY AMOUNT.

PAY-OFF FOR CALL SELLER

For call options seller, the scenario is opposite or mirror image of the buyer's payoff chart as the seller has limited profits and unlimited losses.

Suppose that Mr. Y sells a call option at a Strike price of ₹100 in exchange of a premium amount of ₹10 for the same.

SHORT CALL

STRIKE PRICE
₹100

PREMIUM
₹10

LIMITED REWARDS

UNLIMITED RISKS

In the graph above, we have Profit or Loss on the Y-axis and Price of the Stock at the expiration on the X-axis.

CURRENT MARKET PRICE (CMP)	STRIKE PRICE + PREMIUM – CMP = PROFIT/ LOSS	REMARKS
₹90	₹100 + ₹10 - ₹90 = ~~₹20~~ ₹10	Profit of Premium because the buyer will not excercise the option.
₹100	₹100 + ₹10 - ₹100 = ₹10	The seller will profit as the option will not be exercised.
₹105	₹100 + ₹10 - ₹105 = ₹5	The profits for the seller will start to reduce as the seller will have to payoff a certain amount to the buyer.
₹110	₹100 + ₹10 - ₹110 = ₹0	At this point, neither buyer nor seller will make any profits or losses. This is the break-even point for all parties.
₹120 ⋮ ∞	₹100 - ₹10 - ₹120 = (₹10) ⋮ ∞	Beyond this point, if the price continues to rise, the seller will start incurring losses. The seller can incur infinite losses ⋮ ∞

THE LOSSES OF THE SELLER ARE UNLIMITED BEYOND BREAKEVEN POINT I.E. ₹110 WITH RESPECT TO THE CHANGE IN MARKET PRICE.

This way we can calculate payoffs at different prices and understand the payoff charts for our options position.