

## WORD PROBLEMS ON LINEAR INEQUALITIES

1. A manufacturing company makes two models A and B of a product. Each piece of model A requires 9 labour hours for fabricating and 1 labour hour for finishing. Each piece of model B requires 12 labour hours for fabricating and 3 labour hours for finishing. For fabricating and finishing the maximum labour hours available are 180 and 30 respectively. Formulate the linear inequalities and solve graphically.
2. A factory makes tennis rackets and cricket bats. A tennis racket takes 1.5 hours of machine time and 3 hours of craftsman's time in its making while a cricket bat takes 3 hours machine time and 1 hour of craftsman's time. In a day the factory has the availability of not more than 42 hours of machine time and 24 hours of craftsman's time. Formulate the linear inequalities and solve graphically.
3. A manufacturer produces nuts and bolts. It takes 1 hour of work on machine A and 3 hours on machine B to produce a package of nuts. It takes 3 hours on machine A and 1 hour on machine B to produce a package of bolts. He operates his machines for at the most 12 hours a day. Formulate the linear inequalities and solve graphically.
4. A factory manufactures two types of screws A and B. Each type of screw requires the use of two machines an automatic and a hand operated. It takes 4 minutes on the automatic and 6 minutes on hand operated machines to manufacture a package of screw A, while it takes 6 minutes on automatic and 3 minutes on hand operated machine to manufacture a package of screw B. Each machine is available for at most 4 hours, on any day. Formulate the linear inequalities and solve graphically.
5. A company manufactures two types of novelty Souvenirs made of plywood. Souvenirs of type A requires 5 minutes each for cutting and 10 minutes each for assembling. Souvenirs of type B requires 8 minutes for cutting and 8 minutes each for assembling. There are 3 hours 20 minutes available for cutting and 4 hours for assembling. Formulate the linear inequalities and solve graphically.
6. A merchant plans to sell two types of personal computers a desktop model and a portable model that will cost 25,000 and 40,000 respectively. He estimates that the total monthly demand of computers will not exceed 250 units and he does not want to invest more than 70 lakhs. Formulate the linear inequalities and solve graphically.
7. Anil wants to invest at most rs. 12,000 in bonds A and B. According to the rules, he has to invest at least rs. 2000 in bond A and at least rs. 4000 in bond B. Formulate the linear inequalities and solve graphically.
8. A dealer wishes to purchase a number of fans and sewing machines. He has only rs. 57,600 to invest and has space for at most 20 items. A fan costs him rs. 3,600 and a sewing machine rs. 2,400. Formulate the linear inequalities and solve graphically.
9. An aeroplane can carry a maximum of 200 passengers. The airline reserves at least 20 seats for executive class. However, at least 4 times as many passengers prefer to travel by economy class than by the executive class. Formulate the linear inequalities and solve graphically.
10. If a young man rides his motorcycle at 25 km/hour he had to spend rs. 2 per km on petrol. If he rides at a faster speed of 40 km/hour the petrol cost increases at rs. 5/km. He has rs. 100 to spend on petrol and he can travel for maximum one hour. Formulate the linear inequalities and solve graphically.
11. A library has to accommodate two different types of books on a shelf. The books are 6 cm and 4 cm thick and weight 1 kg and 1.5 kg each respectively. The shelf is 96 cm long and at a time can support a weight of 21 kg. Formulate the linear inequalities and solve graphically.