

Name _____



Linear Equation Word Problems

1. Marianne is planning a road trip from City A to City B, which are 300 miles apart. She wants to maintain an average speed of 60 mph. If she starts at 8:00 AM and takes two breaks of 30 minutes each, at what time will she reach City B?
2. Jackson is saving money to buy a new bicycle that costs \$400. He earns \$10 per hour from his part-time job. If he saves half of his earnings each week, how many hours does he need to work to afford the bicycle?
3. A farmer wants to fence a rectangular pasture adjacent to a river, using 300 feet of fencing. The river forms one side of the pasture. Express the area of the pasture as a function of its length and width, and determine the dimensions for maximum area.
4. Sarah is training for a marathon and plans to increase her running distance by 0.5 miles each day. If she starts with a 2-mile run and continues this pattern for a month, how many miles will she run in total by the end of the month?
5. A company produces and sells backpacks. The total cost (in dollars) to produce x backpacks is given by the equation: $C(x) = 500x + 2000$, where x is the number of backpacks produced. If each backpack sells for \$30, how many backpacks must be sold to break even?
6. A taxi company charges a \$5 base fare plus \$2.50 per mile. If a passenger's fare is \$30, how many miles did they travel?
7. An electronics store sells smartphones for \$300 each. The store's monthly profit, P , in dollars, can be modeled by the equation $P(x) = -0.2x^2 + 600x - 30000$ where x is the number of smartphones sold. How many smartphones must the store sell to maximize its monthly profit?
8. A catering company charges \$20 per person for a party, plus a \$200 setup fee. If the company's total revenue from a party is \$1000, how many people attended the party?
9. A shipping company charges \$5 per package plus a \$50 handling fee. If the total cost for shipping x packages is \$250, how many packages were shipped?
10. A water tank is being filled by two pipes. Pipe A can fill the tank in 4 hours, while Pipe B can fill it in 6 hours. If both pipes are open, how long will it take to fill the tank?