

## Systems of Linear Equations Word Problems

- The local hamburger shack sells burgers for \$5.20 and an order of fries at \$3.20. Yesterday, the restaurant sold a total of 56 items and made \$225.20 in sales. How many burgers did the shack sell yesterday? (calculator)

A) 33 burgers  
B) 25 burgers  
C) 23 burgers  
D) 19 burgers
- A small coffee shop is expanding their menu by adding two new items. The shop plans on buying 75 pounds of Dark Roast and 25 pounds of Exotica Blend from a wholesale producer. The coffee shop has a budget of \$800 and the Exotica Blend is 40% more expensive than the Dark Roast. What are the approximate prices per pound of each blend of coffee if the shop can buy the required amount using as much of their budget as possible? (calculator)

A) \$6.34 Dark Roast; \$13.68 Exotica Blend  
B) \$4.23 Dark Roast; \$10.18 Exotica Blend  
C) \$7.27 Dark Roast; \$11.20 Exotica Blend  
D) \$7.27 Dark Roast; \$10.18 Exotica Blend
- In the equations below, the prices per pound of strawberries and bananas are given by  $S$  and  $B$  respectively. If  $x$  represents the days after harvesting, how many days after harvesting will strawberries and bananas be the same price? (calculator)

$$S = 4.6 - 0.2x$$
$$B = 3.4 - 0.1x$$

A) 14 days  
B) 12 days  
C) 8 days  
D) 3 days
- An airline offers two different seating options on their airplanes, economy and first class. For a particular flight, economy seating is priced at \$120 while first class is priced at \$300. Assuming that all 200 seats on the airplane were occupied and the airline made \$30,300 from the flight, how many first-class seats are there on the plane? (calculator)

A) 165 seats  
B) 35 seats  
C) 90 seats  
D) 23 seats
- Karen plans on buying both standard rope and ultra-strength rope for a project. The standard rope costs \$2.50 per yard while the ultra-strength rope costs twice as much per yard. If Karen wants to spend exactly \$155 for 50 yards of rope, which system of equations could be used to find how much of each rope Karen has to buy? (no calculator)

A)  $S + U = 120; 9S + 5U = 155$   
B)  $S + U = 50; 2.50S + 155U = 50$   
C)  $S + U = 50; 2.50S + 5U = 155$   
D)  $S + U = 155; 50S + 2.5U = 155$
- A restaurant is preparing for a large dinner reservation. For each adult, the restaurant must prepare 4 courses while for each child, they must prepare 2 courses. In total, 126 people will be in attendance and the restaurant must prepare 408 meals. How many adults and children are attending the dinner? (calculator)

A) 76 adults; 50 children  
B) 81 adults; 45 children  
C) 67 adults; 39 children  
D) 78 adults; 48 children
- The system of equations below outlines an order that was placed online by a post card company ordering paper. In total the company bought 500 sheets of paper, 200 in hard stock ( $H$ ) and 300 in standard stock ( $S$ ). The hard stock is 45% more expensive than the standard stock. If the total came out to \$160, what is the approximate rate of both paper prices? (calculator)

A) \$0.39 standard stock; \$0.27 hard stock  
B) \$0.45 standard stock; \$0.21 hard stock  
C) \$0.27 standard stock; \$0.39 hard stock  
D) \$0.15 standard stock; \$0.22 hard stock
- A car dealership is selling 2 classes of their new model, the tier 1 and tier 2. The tier 2 costs 40% more than the tier 1 which costs \$17,400 and the dealership currently has 50 cars. If the dealership sells all their cars, they will have a revenue of \$345,560. Which of the following system of equations best represents the car dealership's situation? (no calculator)

A)  $X + Y = 30; 17,400X + 345,560Y = 345,560$   
B)  $X + Y = 30; 17,400X + 25,230Y = 345,560$   
C)  $X + Y = 50; 17,400X + 24,360Y = 345,560$   
D)  $X + Y = 50; 13,450X + 25,230Y = 345,560$

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9. *A speed boat traveled at an average speed of 90 mph as it sailed from the north shore to a buoy. Once the boat got to the buoy, it traveled to the south shore of the lake at an average speed of 120 mph. The boat traveled for 7 hours in total and traveled 750 miles. Which of the following systems of equations could be used to find the distance of the buoy from the north shore? (no calculator)*
- A)  $X + Y = 7$ ;  $90X + 120Y = 750$
  - B)  $X + Y = 750$ ;  $90X + 120Y = 7$
  - C)  $90X + 120Y = 7$ ;  $X + 120Y = 750$
  - D)  $X + Y = 8$ ;  $50X + 40Y = 750$
10. *George is planning on joining a new yoga studio and is deciding between two options. Chakra Yoga has an initial startup fee of \$90 along with a \$15 monthly subscription while Tree Studio has no initial fee but charges \$30 a month. In how many months will the price for both gyms equal each other? (no calculator)*
- A) 5 months
  - B) 6 months
  - C) 7 months
  - D) 8 months