Algebra I Practice A.CED.A.3: Modeling Linear Systems 3
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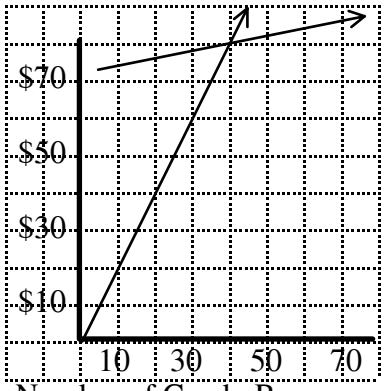
NAME:_____

1. You decide to market your own custom computer software. You must invest $3810 on computer hardware, and spend $2.30 to buy and package each disk. If each program sells for $15.00, how many copies must you sell to break even?

   [A] 220 copies [B] 300 copies

   [C] 221 copies [D] 301 copies

2. 

   Look at the graph above of the expense and income equations for a basketball fund-raiser. What are the coordinates of the break-even point?

   [A] (40, 80) [B] (20, 60)

   [C] (–40, 80) [D] (–20, 60)

3. Maria has invested $1200 in her consulting business. She charges $25 per hour for her services. Use any problem solving strategy to determine the number of hours Maria needs to work to break even.

4. Michal invested $250 to start a business mowing lawns. He mows each lawn for $15. Find the break-even point.

5. Suppose you invest $2,500 in a copy machine and paper. If you charge $0.20 a copy, how many copies must be made before you break even?

6. At the local ballpark, the team charges $8.50 for each ticket and expects to make $2400.00 in concessions. The team must pay its players $3240.00 and pay all other workers $2280.00. Each fan gets a free bat that costs the team $2.50 per bat. Write the income and expense equations and find how many tickets must be sold to break even.

7. Mike and Kim invest $10,000 in equipment to print yearbooks for schools. Each yearbook costs $5.75 to print and sells for $25. How many yearbooks must they sell before their business breaks even?

8. The manager of the local theater spends $250 on programs, $500 on advertising, and $600 on costumes and props. He decides to charge $7 a ticket and expects an income of $200 from refreshments. How many tickets must be sold to break even?

9. Adam's soccer team needs new uniforms for next year's season. In order to finance the purchase of sixteen new uniforms, the players are asked to sell packages of popcorn for $1.00 each. If each uniform costs thirty dollars and the profit from each package sold is $0.25, how many packages must be sold to pay for the uniforms?

10. The Spanish Club is planning a fiesta to raise money. The cost of renting the room for the fiesta is $100. To cover the cost of the room, members of the club decide to charge a fee of $1.00 for each member and $1.25 for each guest who is not a member. All fifty members plan to attend. How many guests must attend to cover the cost of the room?

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[1] B

[2] A

[3] 48 hours

[4] 17 lawns

[5] 12,500 copies

income = $8.5x + 2400$;
expenses = $3240 + 2280 + 2.5x$

[6] 520 tickets

[7] 520 yearbooks

[8] 165 tickets

[9] 1,920

[10] at least 40 guests