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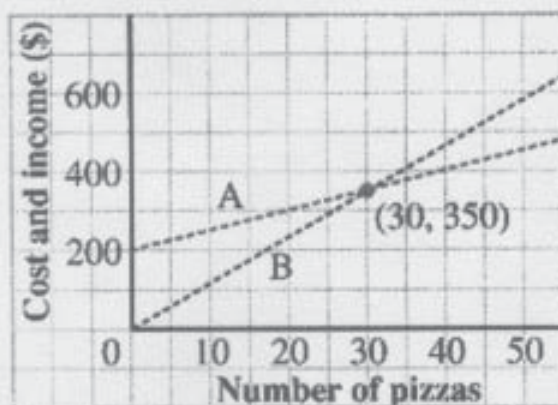
LINEAR SYSTEMS

- Instructions:
- Show all your work
 - Use a pencil
 - Calculators are permitted

PART A

1. This graph represents the cost to produce and sell pizza. Graph A represents the daily cost to produce pizza. Graph B represents the daily income from the sale of pizzas.

Cost of Pizza



- a) Describe what the point of intersection represents.

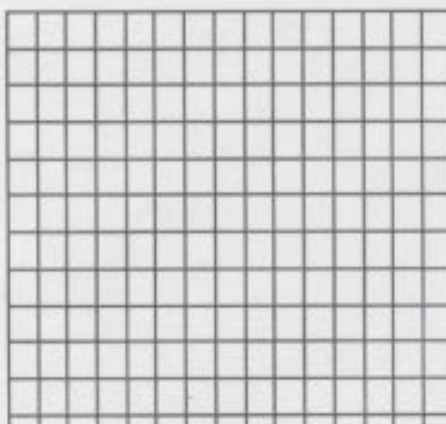
- b) How many pizzas must be sold before there is a profit (that is, the income is greater than the cost)? Explain.

2. Solve this linear system by graphing. Check your solution.

$$y = 2x + 5$$
$$y = 4x + 3$$

Solution: (,)

Check:



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3. Solve each linear system by substitution. Write your steps. Check your solutions.

a) $y = 3x + 2$
 $y = 6x - 1$

b) $x + y = 4$
 $x - y = 5$

c) $5x - 3y = 47$
 $6x - y = 7$

Check:

Check:

Check:

4. Solve each linear system by elimination. Show your steps. Check your solutions.

a) $x + y = 5$
 $x - y = 3$

b) $3x + 2y = 18$
 $x + y = 1$

c) $2x + 5y = 2$
 $3x - 2y = -16$

Check:

Check:

Check:

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5. Eight thousand people attended a rock concert. The ticket prices were \$50 and \$30. The total revenue from the ticket sales was \$250 000. How many tickets of each price were sold?

6. A golf club charges its members an annual fee, and a greens fee for each golf game played. In one year, Ron played 12 games and paid \$814. In the same year, Jane played 29 games and paid \$1188.

a) What is the annual fee?

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PART B – Graphing Calculator

1. Solve each linear system using a graphing calculator. Round to two decimal places.

a) $y = 0.3x + 1$

$y = -1.2x - 3$

b) $-2.4x + y + 5 = 0 \rightarrow$

$-0.45x + y - 1 = 0 \rightarrow$

Solution: (,)

Solution: (,)

2. A company produces compact discs. Each disc sells for \$8. The income, C dollars, from the sale of x discs is given by $C = 8x$. The cost to produce x discs is given by

$C = 4x + 48\,000$. Use the following WINDOW settings: $X_{\min} = 0$, $X_{\max} = 16\,000$, $X_{\text{scl}} = 1\,000$, $Y_{\min} = 0$, $Y_{\max} = 150\,000$, $Y_{\text{scl}} = 10\,000$, $X_{\text{res}} = 1$

a) Solve this linear system.

$C = 8x$

$C = 4x + 48\,000$

Solution (,)

b) What does the point of intersection represent?

c) How many discs must be sold before there is a profit (that is, the income is greater than the cost)?

3. Amherstburg and Somewhereville are two towns in Ontario. They are 350 km apart. Car A travels from Somewhereville to Amherstburg at an average speed of 70 km/h. Its journey is described by the equation $d = 350 - 70t$.

Car B travels from Amherstburg to Somewhereville at an average speed of 80 km/h. Its journey is described by the equation $d = 80t$.

For each car, d kilometers represents its distance from Amherstburg after driving for t hours.

a) Solve the linear system formed by the two equations.

WINDOW: $X_{\min} =$

$X_{\max} =$

$X_{\text{scl}} =$

$Y_{\min} =$

$Y_{\max} =$

$Y_{\text{scl}} =$

$X_{\text{res}} = 1$

Solution:

b) What does the point of intersection represent?