

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**Give the coordinates of the point of intersection of the linear equations.**

$$\begin{aligned} 1) \quad & 4x + y = 9 \\ & 2x + 4y = 22 \end{aligned}$$

- A) (5, 1) B) (1, 5) C) (0, 5) D) (1, 0)

Does the system have a unique solution, no solution, or many solutions?

$$\begin{aligned} 2) \quad & 2x + 3y = 6 \\ & 4x + 6y = 12 \end{aligned}$$

- A) A unique solution B) Many solutions C) No solution

Solve the problem.

3) Suppose that the number of inhabitants of Country A is given by $y = -7.73x + 923.95$ million, and the number of inhabitants of Country B is given by $y = 3.67x + 617.29$ million, where x is the number of years since 1960. When the number of inhabitants of Country A equals the number of inhabitants of Country B, how many people inhabit each country?

- A) 716,786,000 people B) 715,240,000 people
C) 716,013,000 people D) 717,559,000 people

To find the number of units that gives break-even for the product, solve the equation $R = C$. Round your answer to the nearest whole unit.

4) A manufacturer has total revenue given by the function $R = 90x$ and has total cost given by $C = 45x + 65,000$, where x is the number of units produced and sold.

- A) 45 units B) 1444 units C) 481 units D) 135 units

Solve the system of equations by substitution, if a solution exists.

$$\begin{aligned} 5) \quad & 7x + 6y = 42 \\ & 2x + 2y = 14 \end{aligned}$$

- A) $x = 0, y = 8$ B) $x = -1, y = 8$ C) $x = 0, y = 7$ D) No Solution

Solve the system of equations by elimination, if a solution exists.

$$\begin{aligned} 6) \quad & -4x - 4y = 16 \\ & 2x - 2y = 8 \end{aligned}$$

- A) $x = -1, y = -3$ B) $x = 0, y = -3$ C) $x = 0, y = -4$ D) No solution

Solve the problem.

7) The demand for a certain product is given by $p + 5q = 289$, and the supply is given by $p - 7q = 25$, where p is the price in dollars and q is the quantity demanded or supplied at price p . Find the price at which the quantity demanded equals the quantity supplied.

- A) \$176 B) \$182 C) \$181 D) \$179

Solve the system of equations by substitution, if a solution exists.

8) $3x + 4y = 5$
 $9x = 10 + 12y$

A) Many solutions

B) No solution

C) $x = \frac{1}{18}, y = \frac{5}{24}$

D) $x = \frac{25}{18}, y = \frac{5}{24}$

9) $x + 7y = -41$
 $7x + 6y = 14$

A) $x = -8, y = -6$

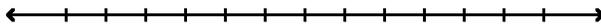
B) $x = 7, y = -6$

C) $x = 8, y = -7$

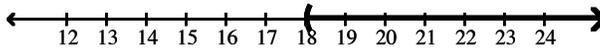
D) No solution

Solve the inequality and draw a number line graph of the solution.

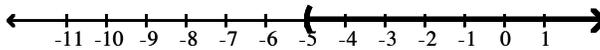
10) $18z + 27 > 3(5z + 4)$



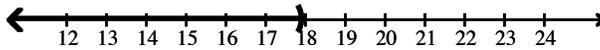
A) $(18, \infty)$



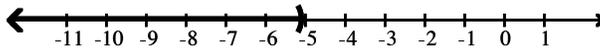
B) $(-5, \infty)$



C) $(-\infty, 18)$



D) $(-\infty, -5)$



Translate the sentence to an algebraic inequality.

11) The height of a member of the basketball team is at least 77 inches.

A) $x \leq 77$

B) $x \geq 77$

C) $x > 77$

D) $x < 77$

Solve the problem.

12) Fantastic Flags, Inc. finds that the cost to make x flags is $C = 25x + 10,695$, while the revenue produced from them is $R = 37x$ (C and R are in dollars). What is the smallest whole number of flags, x , that must be sold for the company to show a profit?

A) 663,090

B) 173

C) 128,340

D) 892

Solve the inequality.

13) $-9 < \frac{3 - 4x}{10} \leq 5$

A) $\frac{47}{4} < x < \frac{93}{4}$

B) $-\frac{47}{4} \leq x < \frac{93}{4}$

C) $-\frac{47}{4} \leq x \leq \frac{93}{4}$

D) $\frac{47}{4} \leq x < \frac{93}{4}$

Solve the problem.

- 14) During the first four months of the year, Jack earned \$920, \$580, \$1260 and \$780. If Jack must have an average salary of at least \$990 in order to earn retirement benefits, what must Jack earn in the fifth month in order to qualify for benefits?
- A) at most \$885 B) at least \$906 C) at least \$1410 D) at most \$990

Solve the inequality.

- 15) $-19 < -4x + 5$ and $-4x + 5 \leq -3$
- A) $2 \leq x < 6$ B) $2 < x \leq 6$ C) $-6 < x \leq -2$ D) $-6 \leq x < -2$

Translate the sentence to an algebraic inequality.

- 16) The cost is no more than \$352.15.
- A) $x < 352.15$ B) $x > 352.15$ C) $x \leq 352.15$ D) $x \geq 352.15$

Solve.

- 17) Using the formula to find Fahrenheit (F) in terms of Celsius (C), $F = \left(\frac{9}{5}\right)C + 32$, find the range (to the nearest tenth) of the Fahrenheit temperature when the range of the Celsius temperature is between 1°C and 6°C , inclusive.
- A) Between 32.6°F and 32.8°F , inclusive B) Between 17.8°F and 26.8°F , inclusive
C) Between 33.8°F and 42.8°F , inclusive D) Between 1.8°F and 10.8°F , inclusive

Translate the sentence to an algebraic inequality.

- 18) A number is less than or equal to -9 .
- A) $x \leq -9$ B) $x \geq -9$ C) $x < -9$ D) $x > -9$

Solve the problem.

- 19) Correct Computers, Inc. finds that the cost to make x laptop computers is $C = 1836x + 100,786$, while the revenue produced from them is $R = 4458x$ (C and R are in dollars). What is the smallest whole number of computers, x , that must be sold for the company to show a profit?
- A) 39 computers B) 264,260,892 computers
C) 634,347,084 computers D) 17 computers

Solve.

- 20) An omelette costs \$1.50 more than Mario's order of pancakes. After treating his family to breakfast, Mario is sure that 5 omelettes and 2 orders of pancakes cost more than \$25 but not more than \$40, including tax of 7% and a tip of \$3.50. In what price range is an order of pancakes?
- A) $(\$1.77, \$3.77]$ B) $[\$1.77, \$3.77]$ C) $(\$1.80, \$3.80)$ D) $(\$1.80, \$3.80]$