

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

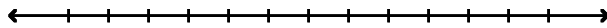
B) $x = 7, y = -6$

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

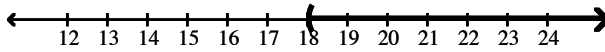
D) No solution

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

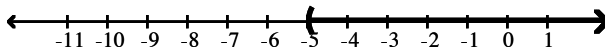
10) $18z + 27 > 3(5z + 4)$



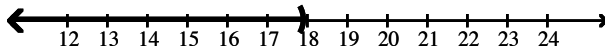
A) $(18, \infty)$



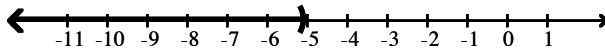
B) $(-5, \infty)$



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) $(\$1.80, \$3.80]$