

MAT1033

Review #2

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the system of equations by the substitution method.

$$1) \begin{cases} y = 3x - 7 \\ y = 5x - 6 \end{cases}$$

1) _____

$$2) \begin{cases} 3x + y = 11 \\ 9x + 3y = 33 \end{cases}$$

2) _____

$$3) \begin{cases} 2y = x + 20 \\ 4x + 8y = 0 \end{cases}$$

3) _____

$$4) \begin{cases} x + y = 8 \\ y = -5x \end{cases}$$

4) _____

$$5) \begin{cases} -4y + 5y = 8x + 5(x - 5) - 8x + 5 \\ 3(x + y) - x + y = -58 \end{cases}$$

5) _____

$$6) \begin{cases} y = 5x - 5 \\ 2y + 8x = -28 \end{cases}$$

6) _____

$$7) \begin{cases} -3x - 2y = -126 \\ x = 4y \end{cases}$$

7) _____

$$8) \begin{cases} -6y = x + 21 \\ 3x + 5y = -11 \end{cases}$$

8) _____

$$9) \begin{cases} \frac{1}{7}x - 2y = 1 \\ x - 14y = 7 \end{cases}$$

9) _____

$$10) \begin{cases} y = 1.4x + 4.5 \\ y = 0.7x + 2.33 \end{cases}$$

10) _____

$$11) \begin{cases} x + 5y = -21 \\ -6x + 4y = -10 \end{cases}$$

11) _____

$$12) \begin{cases} -5x + y = -26 \\ -6x - 3y = -6 \end{cases}$$

12) _____

$$13) \begin{cases} 3y = x - 30 \\ 3x + 9y = 0 \end{cases}$$

13) _____

Solve the system of equations by the addition method.

$$14) \begin{cases} 3x + y = -43 \\ 6x - y = 7 \end{cases}$$

14) _____

$$15) \begin{cases} \frac{x}{2} + \frac{y}{2} = 1 \\ \frac{x}{4} - \frac{y}{4} = \frac{7}{2} \end{cases}$$

15) _____

$$16) \begin{cases} x + y = -1 \\ x - y = 9 \end{cases}$$

16) _____

Solve the system of equations by either the addition method or the substitution method.

$$17) \begin{cases} 2x + 4y = 14 \\ 3x - 3y = -54.6 \end{cases}$$

17) _____

Solve the system of equations by the addition method.

$$18) \begin{cases} 2x - 3y = 2 \\ 3x - 5y = 2 \end{cases}$$

18) _____

$$19) \begin{cases} -2x + 5y = -33 \\ -7x + 3y = -43 \end{cases}$$

19) _____

Solve the system of equations by either the addition method or the substitution method.

$$20) \begin{cases} \frac{x+5}{2} = \frac{y+12}{4} \\ \frac{x}{4} = \frac{2y+2}{8} \end{cases}$$

20) _____

Solve the system of equations by the addition method.

$$21) \begin{cases} -2x + 2y = -5 \\ 4x - 4y = 10 \end{cases}$$

21) _____

$$22) \begin{cases} x + 5y = -26 \\ -6x + 5y = 16 \end{cases}$$

22) _____

$$23) \begin{cases} 8x + 2y = -6 \\ -2x - 2y = -24 \end{cases}$$

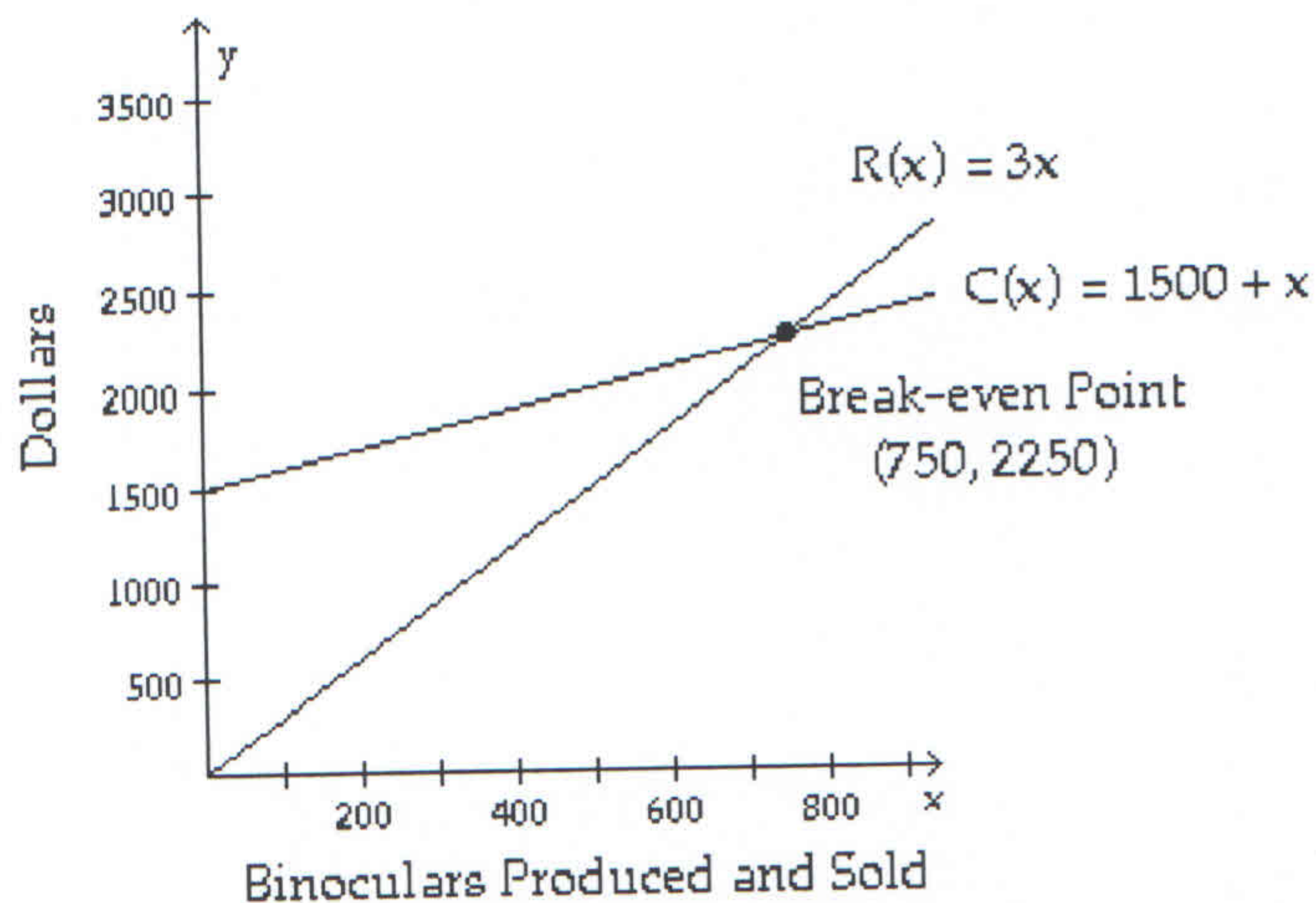
23) _____

Solve.

24) A chemist needs 70 milliliters of a 55% solution but has only 40% and 61% solutions available. Find how many milliliters of each that should be mixed to get the desired solution.

24) _____

The figure shows the graphs of the cost and revenue functions for a company that manufactures and sells binoculars. Use the information in the figure to answer the question.



25) Use the revenue and cost functions to write the profit function from producing and selling x binoculars.

25) _____

Solve.

- 26) Three trains — one eastbound, one westbound, and one northbound — leave a city at the same time. The speed of the northbound train is 10 miles per hour greater than the speed of the eastbound train. After 9 hours, the distance between the westbound train and the eastbound train is 720 miles. Twice the speed of the westbound train is 60 miles per hour more than the speed of the northbound train. Find the speeds of the three trains. 26) _____
- 27) One number is 7 less than a second number. Twice the second number is 24 more than 3 times the first. Find the two numbers. 27) _____
- 28) Natasha rides her bike (at a constant speed) for 4 hours, helped by a wind of 3 miles per hour. Pedaling at the same rate, the trip back against the wind takes 10 hours. Find find the total round trip distance she traveled. 28) _____
- 29) A certain aircraft can fly 1008 miles with the wind in 4 hours and travel the same distance against the wind in 7 hours. What is the speed of the wind? 29) _____
- 30) One number is four more than a second number. Two times the first number is 4 more than four times the second number. 30) _____
- 31) University Theater sold 506 tickets for a play. Tickets cost \$21 per adult and \$12 per senior citizen. If total receipts were \$7359, how many senior citizen tickets were sold? 31) _____
- 32) A barge takes 4 hours to move (at a constant rate) downstream for 40 miles, helped by a current of 3 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current. 32) _____
- 33) A vendor sells hot dogs, bags of potato chips, and soft drinks. A customer buys 4 hot dogs, 5 bags of potato chips, and 2 soft drinks for \$16.00. The price of a hot dog is \$1.00 more than the price of a bag of potato chips. The cost of a soft drink is \$2.50 less than the price of two hot dogs. Find the cost of each item. 33) _____
- 34) A basketball player scored 29 points in a game. The number of three-point field goals the player made was 29 less than three times the number of free throws (each worth 1 point). Twice the number of two-point field goals the player made was 15 more than the number of three-point field goals made. Find the number of free-throws, two-point field goals, and three-point field goals that the player made in the game. 34) _____

Answer Key

Testname: MAT1033 - REVIEW 2

1) $\left(-\frac{1}{2}, -\frac{17}{2}\right)$

2) infinite number of solutions

3) (-10, 5)

4) (-2, 10)

5) (1, -15)

6) (-1, -10)

7) (36, 9)

8) (3, -4)

9) infinite number of solutions

10) (-3.1, 0.16)

11) (-1, -4)

12) (4, -6)

13) (15, -5)

14) (-4, -31)

15) (8, -6)

16) (4, -5)

17) (-9.8, 8.4)

18) (4, 2)

19) (4, -5)

20) (1, 0)

21) infinite number of solutions

22) (-6, -4)

23) (-5, 17)

24) 20 ml of 40%; 50 ml of 61%

25) $P(x) = 2x - 1500$

26) eastbound, 30 mph; westbound, 50 mph; northbound, 40 mph

27) -10 and -3

28) 80 mi

29) 54 mph

30) 6 and 2

31) 363 senior citizen tickets

32) 10 hr

33) \$2.00 for a hot dog; \$1.00 for a bag of potato chips; \$1.50 for a soft drink

34) 10 free throws; 8 two-point field goals; 1 three-point field goals