Linear equations 1

Name_____

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

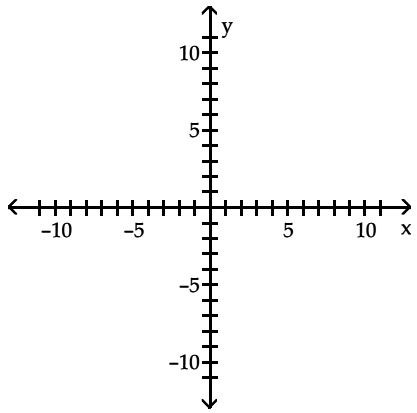
1) Find the slope of the line passing through the points (5, –3) and (2, –1). 1) _____

2) For the line $y = 7x - 3$, find (a) the slope and (b) the y–intercept. 2) _____

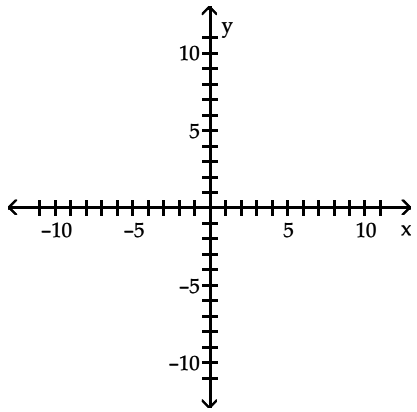
3) Find the slope of the line $4x - 8y + 5 = 0$. 3) _____

4) Find the slope of the line $3x + 9y - 7 = 0$. 4) _____

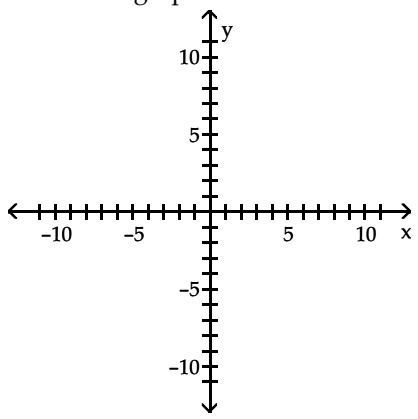
5) Graph the equation $3x + 4y - 12 = 0$. 5) _____



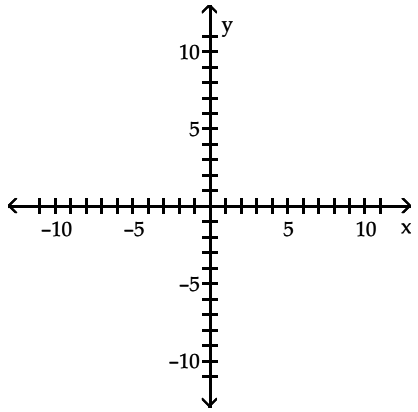
6) Graph the equation $5x + y + 8 = 0$. 6) _____



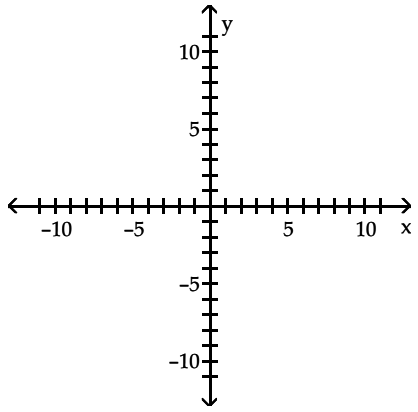
7) Sketch the graph of $x = 4$. 7) _____



8) Sketch the graph of $12(x - 2) - 7(y - 10) = 0$. 8) _____



9) For the straight line $2x + y - 3 = 0$ find: (a) the slope; (b) the y–intercept; and (c) sketch the graph. 9) _____



10) Find an equation of the line that passes through the origin and that has slope –5. 10) _____

11) Find the slope–intercept form of an equation of the line that passes through the point (2, 0) and has slope 4. 11) _____

12) The equation of a certain line is $3(x - 4) - (y + 1) = 4$. Find: (a) the slope–intercept form and (b) a general linear form. 12) _____

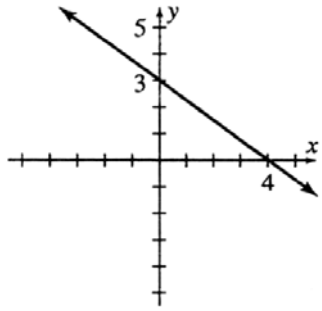
1) $-\frac{2}{3}$

2) (a) 7; (b) –3

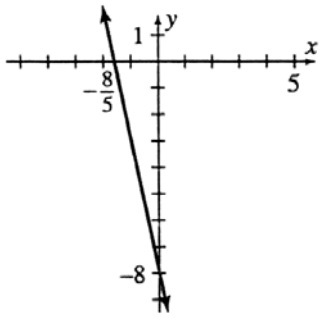
3) $\frac{1}{2}$

4) $-\frac{1}{3}$

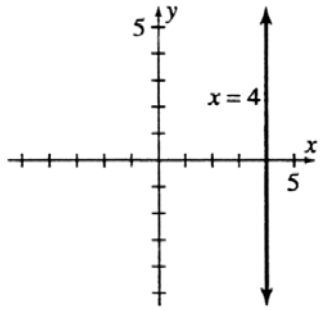
5)



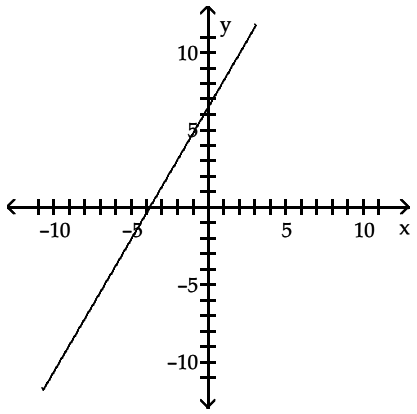
6)



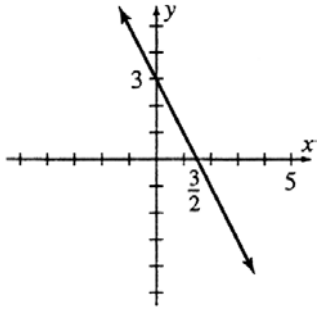
7)



8)



9) (a) –2 (b) 3
(c)



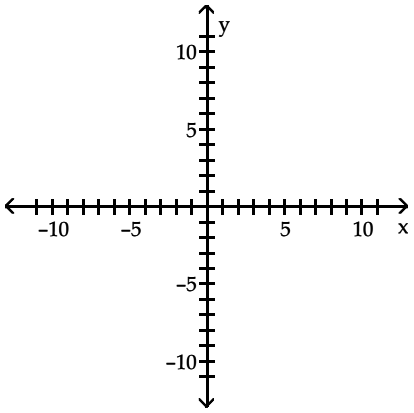
10) $y = -5x$
11) $y = 4x - 8$
12) (a) $y = 3x - 17$ (b) $3x - y - 17 = 0$

Linear Equations 2

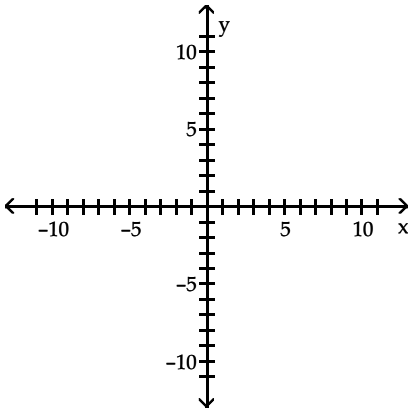
Name_____

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

1) For the linear function $f(x) = -5x + 5$, find: (a) the slope and (b) the vertical axis intercept. (c) Sketch the graph of f. 1) _____



2) For the linear function $f(x) = 2x + 1$, find: (a) the slope and (b) the vertical axis intercept. (c) Sketch the graph of f. 2) _____



3) Suppose f is a linear function such that $f(-2) = 5$ and $f(5) = 2$. Find $f(x)$. 3) _____

4) Suppose f is a linear function such that $f(0) = 6$ and $f(3) = 4$. Find $f(x)$. 4) _____

5) Suppose f is a linear function with slope 5 and such that $f(1) = 4$. Find $f(x)$. 5) _____

6) Suppose the variables q and p are linearly related such that $p = 3$ when $q = 20$, and $p = 5$ when $q = 15$. Find p when $q = 12$. 6) _____

7) Suppose that a manufacturer will place 1000 units of a product on the market when the price is \$10 per unit, and 1400 units when the price is \$12 per unit. Find the supply equation for the product assuming the price p and quantity q are linearly related. 7) _____

8) Suppose the cost to produce 100 units of a product is \$5000, and the cost to produce 125 units is \$6000. If cost c is linearly related to output q, find an equation relating c and q. 8) _____

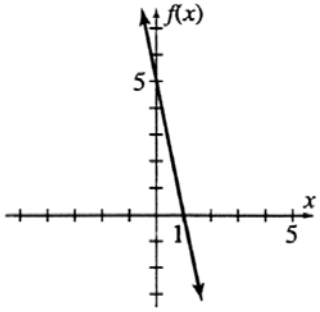
9) Determine the linear function $f(t)$ with slope = –1 and $f(2) = 1$. 9) _____

10) Determine a linear function $f(x)$, given $f(2) = 0.5$; $f(1) = -1$. 10) _____

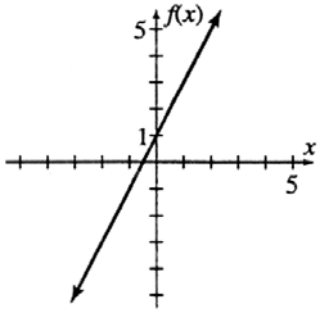
11) Tickets to an opera at the Masonic Auditorium cost \$14 for main floor seats and \$10 for the balcony seats. If \$8600 must be collected to meet expenses, what is an equation for the possible combinations of ticket sales to cover costs? 11) _____

12) The demand per week for a new automobile is 400 units when the price is \$16,700 each, and 500 units when the price is \$14,900 each. Find the demand equation for the cars, assuming that it is linear. 12) _____

1) (a) –5 (b) 5
(c)



2) (a) 2 (b) 1
(c)



3) $-\frac{3}{7}x+\frac{29}{7}$

4) $-\frac{2}{3}x+6$

5) $5x-1$

6) $\frac{31}{5}$

7) $p=\frac{1}{200}q+5$

8) $c=40q+1000$

9) $f(t)=-t+3$

10) $f(x)=\frac{3}{2}x-\frac{5}{2}$

11) x = number of main floor seats sold; y = number of balcony seats sold; $14x+10y=8600$

12) $p=-18q+23{,}900$

MPP Linear Systems 1

Name_____

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

1) Solve the following system algebraically: $\begin{cases} 2x - y = 1 \\ -x + 2y = 7 \end{cases}$ 1) _____

2) Solve the following system algebraically: $\begin{cases} 5u + v = -2 \\ 20u + 2v = 1 \end{cases}$ 2) _____

3) Solve the following system algebraically: $\begin{cases} 3x - 4y = 18 \\ 2x + 5y = -11 \end{cases}$ 3) _____

4) Solve the following system algebraically: $\begin{cases} 5x + 2y = 36 \\ 8x - 3y = -54 \end{cases}$ 4) _____

5) Solve the following system algebraically: $\begin{cases} 3x + 5y = -6 \\ 2x - 6 = 5y \end{cases}$ 5) _____

6) Solve the following system algebraically: $\begin{cases} \frac{1}{2}x - \frac{1}{4}y = \frac{1}{6} \\ x + \frac{1}{2}y = \frac{2}{3} \end{cases}$ 6) _____

7) Solve the following system algebraically: $\begin{cases} 12x - 6y = 7 \\ 2x + 9y = 20x + 3 \end{cases}$ 7) _____

8) Solve the following system algebraically: $\begin{cases} 8x - 4y = 7 \\ y = 2x - 4 \end{cases}$ 8) _____

9) Solve the following system algebraically: $\begin{cases} 3y - 2x = 4 \\ 4x - 6y = -8 \end{cases}$ 9) _____

10) Solve the following system algebraically: 10) _____
$\begin{cases} 2x + y + z = 0 \\ 4x + 3y + 2z = 2 \\ 2x - y - 3z = 0 \end{cases}$

11) Solve the following system algebraically: $\begin{cases} 2x - y + 3z = 12 \\ x + y - z = -3 \\ x + 2y - 3z = -10 \end{cases}$ 11) _____

12) Solve the following system algebraically: $\begin{cases} x - z = 14 \\ y + z = 21 \\ x - y + z = -10 \end{cases}$ 12) _____

Answer Key
Testname: MPP–LINEAR SYSTEMS–1

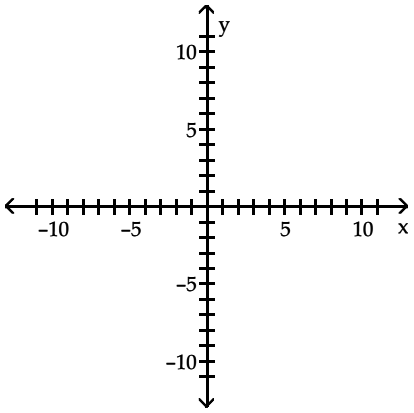
1) $x = 3, y = 5$
2) $u = \frac{1}{2}, v = -\frac{9}{2}$
3) $x = 2, y = -3$
4) $x = 0, y = 18$
5) $x = 0, y = -\frac{6}{5}$
6) $x = \frac{1}{2}, y = \frac{1}{3}$
7) no solution
8) no solution
9) the coordinates of any point on the line $3y - 2x = 4$
10) $x = -\frac{1}{2}, y = 2, z = -1$
11) $x = 1, y = -1, z = 3$
12) $x = 13, y = 22, z = -1$

MPP – Quadratic Functions 1

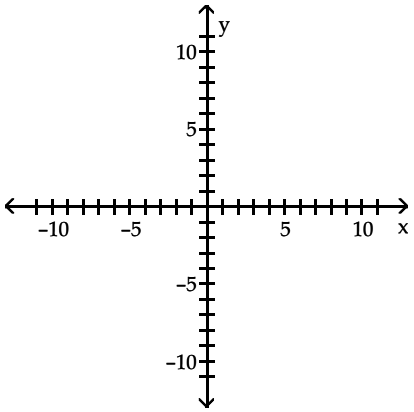
Name_____

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

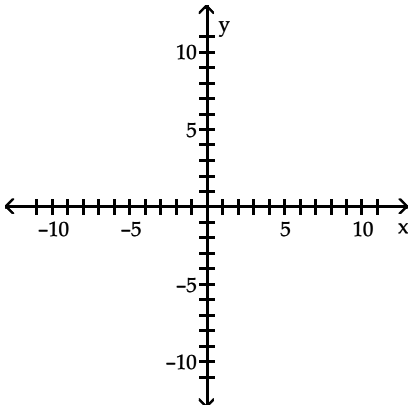
1) Graph the function $y = f(x) = x^2 - 6x + 5$ and indicate the coordinates of the vertex and intercepts. 1) _____



2) Graph the function $y = f(x) = x^2 - 6x$ and indicate the coordinates of the vertex and intercepts. 2) _____



3) Graph the function $y = f(x) = 3 - 2x - x^2$ and indicate the coordinates of the vertex and intercepts. 3) _____



4) State whether $f(x) = 12x^2 - 24x + 10$ has maximum or minimum value and find that value. 4) _____

5) State whether $f(x) = 10 + 16x - 4x^2$ has maximum or minimum value and find that value. 5) _____

6) For the parabola $y = f(x) = x^2 - 2x - 8$, find: (a) the vertex, (b) the y–intercept, and (c) the x–intercepts. 6) _____

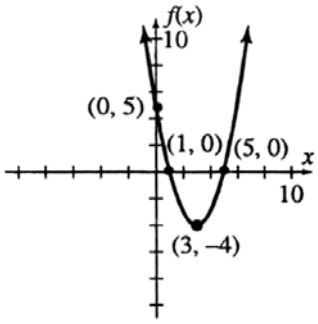
7) For the parabola $y = f(x) = 2x^2 - 4x - 6$, find: (a) the vertex, (b) the y–intercept, and (c) the x–intercepts. 7) _____

8) For the parabola $y = f(x) = -x^2 + 7x - 6$, find: (a) the vertex, (b) the y–intercept, and (c) the x–intercepts. 8) _____

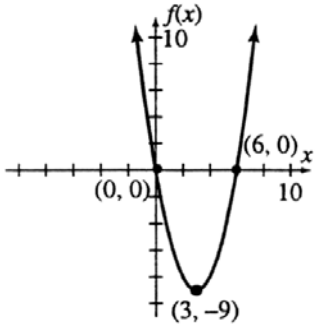
9) The demand function for a manufacturer's product is $p = f(q) = 6 - q$ where p is price per unit when q units are demanded by consumers. Find the level of production that will maximize the manufacturer's total revenue and determine this revenue. 9) _____

10) The demand function for an appliance company's line of washing machines is $p = 300 - 5q$, where p is the price (in dollars) per unit when q units are demanded (per week) by consumers. Find the level of production that will maximize the manufacturer's total revenue, and determine this revenue. 10) _____

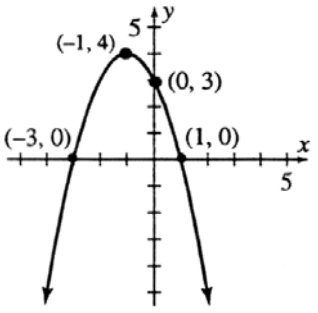
1)



2)



3)



4) minimum value; –2

5) maximum value; 26

6) (a) (1, –9) (b) –8 (c) –2 and 4

7) (a) (1, –8) (b) –6 (c) –1 and 3

8) (a) $\left(\frac{7}{2}, \frac{25}{4}\right)$ (b) –6 (c) 1 and 6

9) 3; 9

10) 30 units; $4500 maximum revenue