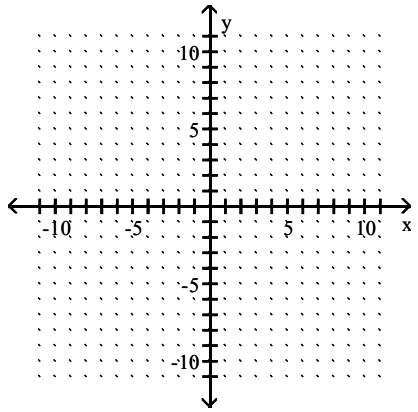
Math 125 Test#1(Ch 7 and Ch 8) Name_____

Show all work neatly and systematically for full credit. Total points: 100.

(4). **Graph, then state its domain and range.**

1) $f(x) = -\frac{2}{3}x+1$



Domain: _____

Range: _____

(4) **Solve the formula for the specified letter.**

2) $\frac{PV}{T} = \frac{pv}{t}$ for P

(3) For the pair of functions, find the indicated sum.

3) Find $(f - g)(-3)$ when $f(x) = 2x^2 - 7$ and $g(x) = x - 7$.

(4) **Solve the problem.**

4) Cindy bought a car for $18,614. The car depreciates at a rate of $150 per month. Formulate a model that can be used to determine the value, C(t), of the car t months after purchase. Find the value of the car after 34 months.

(6) **Find the indicated function value for the function.**

5) Given $f(x) = \begin{cases} x - 4, & \text{if } x < -1 \\ 2x, & \text{if } -1 \le x < 1 \\ 2x + 3, & \text{if } x \ge 1 \end{cases}$

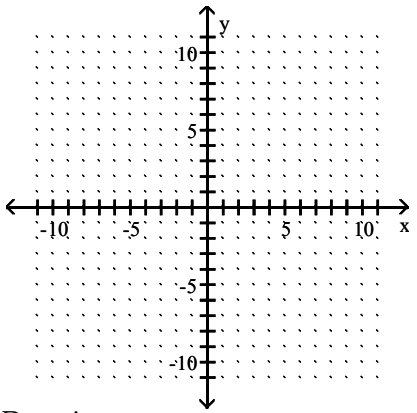
a. f(4)

b. f(–1)

c. f(–3)

(4) Graph, then state the domain and range.

6) $g(x) = 1$



Domain: _____

Range: _____

(8) **Find the domain of f. Write the domain in set builder notation or interval notation.**

7) a. $f(x) = \dfrac{7x - 5}{x^2 + 1}$

b. $f(x) = \dfrac{7x - 5}{x^2 - 1}$

c. $f(x) = 2x^2 - 7$

c. $f(x) = 3x + \dfrac{4}{x - 5}$

(5) **Solve.**

8) The weight W of an object on the Moon varies directly as the weight E on earth. A person who weighs 187 lb on earth weighs 37.4 lb on the Moon. How much would a 188–lb person weigh on the Moon?

(4) Solve the formula for the specified letter.

9) $\dfrac{1}{a} + \dfrac{1}{b} = \dfrac{1}{c}$ for c

Solve.

10) (7 points)

Let $f(x) = x^2 - 3x - 8$ and $g(x) = 2x - 5$.

Find the following:

a. g(–2)

b. f(–2)

c. g(–2) – f(–2) .

d. (f + g)(x)

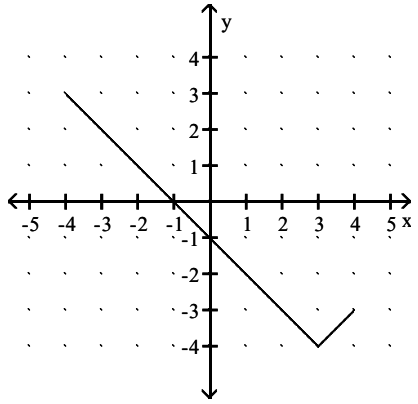
e. Domain of f + g.

f. (f/g)(x)

h. Domain of (f/g)(x).

(4) **For the graph of a function f. Find the following.**

11)



a. Find f(2)

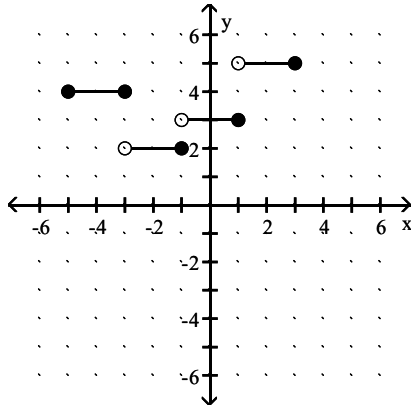
b. If f(x)=4, fnd x.

c. Domain:

d. Range:

(4) **For the graph of a function f, determine the domain and the range as indicated.**

12) Find the range.



Domain: _____

Range: _____

(3) Find the domain and the range for the following relation.

13) f = {(–1, 1), (3, –2), (4, 2),(7, 3), (7, 3)}

a. Is this relation a function? Explain.

b. Domain:

c. Range:

(6) Solve the system.

14) $x - y + 5z = 27$

$2x + z = 5$

$x + 4y + z = -3$

(2, 3) Find the value of the determinant.

15) a. $\begin{vmatrix} -1 & 1 \\ 3 & 3 \end{vmatrix}$

b. $\begin{vmatrix} 3 & -5 & 1 \\ 2 & -3 & -3 \\ 4 & 5 & -2 \end{vmatrix}$

(4) Use Cramer's rule to solve the system of equations. If D = 0, use another method to determine the solution set.

17) $x - 3y = 21$
$-3x - 4y = 15$

(6) Solve the system of equations.

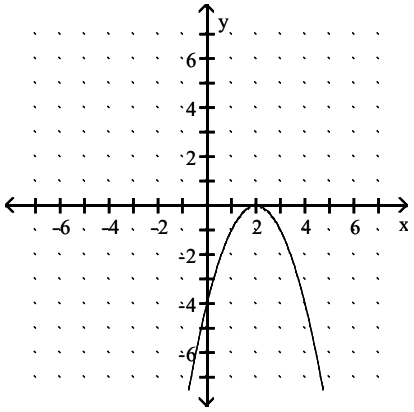
16) $x - y + 2z = -5$
$2x + z = 0$
$x + 4y + z = 20$

(5) Define the variable, set up equations. DO NOT solve.

18) A basketball fieldhouse seats 15,000. Courtside seats sell for $9, endzone for $7, and balcony for $4. The total revenue from a sell–out is $ 81,000. If half the courtside and balcony seats and all the endzone seats are sold, the total revenue is $47,500. How many of each type are there?

(4) A function of x is depicted in the graph.

19) f(x) = –1



a. Find the domain.

b. Find the range.

c. Find f(0)

d. Given f(x)=–1, find x.

(4) Find the function value.

20) Given $f(x) = x^2 + 4$.

a. Find f(–2)

b. Find f(a + 3)

(6) Solve using matrices.

21) $x + y + z = -4$
$x - y + 2z = -1$
$3x + y + z = -12$