Math 131   Test 2   Name: _____
Show all necessary steps clearly, neatly, and systematically to receive full credit.

1. Mae Jackson has a total of $6000 invested in two simple interest accounts. The annual simple interest rate on one account is 9%. The annual simple interest rate on the second account is 6%. How much invested in each account if both accounts earn the same amount of interest? (*make sure to use 3-steps format.*)
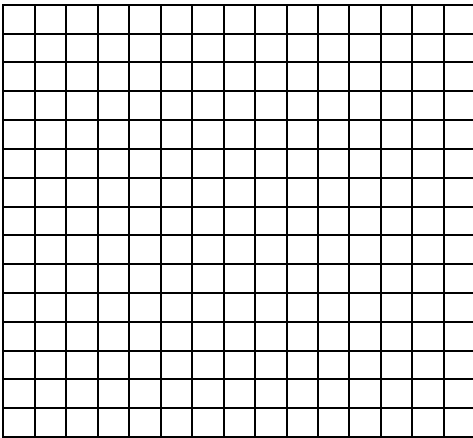
2. Find the domain of the given functions. Write the result in interval notation.

a. $f(x) = \dfrac{3x+5}{7}$

c. $k(x) = \dfrac{1}{2}\sqrt{\dfrac{2}{3}x - \dfrac{4}{5}} + \dfrac{5}{6}$

b. $h(x) = \dfrac{3x-2}{(2x-1)(x+3)}$

3. Consider the graph of the function.

a. Find $g(-3)$.

b. What is the domain of g?

c. What is the range of g?

d. What value(s) of x are $g(x) = -2$?

e. Find the zero(s) of g?

4. A snack food is made by mixing 5 lb of popcorn that costs $0.80 per pound with caramel that costs $2.40 per pound. How much caramel is needed to make a mixture that costs $1.40 per pound? (*make sure to use 3-steps format.*)

5. Let $f(x) = x^2 - 2x$.
a. find $f(-3)$ b. find $f(x+h)$

6. Sprint has a long-distance phone plan that charges a monthly fee of $5.95 plus $0.05 per minute.

a. Find a linear function that expresses the monthly bill B as a function of minutes used m.

b. What are the independent and dependent variables?

c. What is the implied domain of this linear function?

d. What is the monthly bill if 300 minutes are used for long-distance phone calls?

e. How many minutes were used for long distance if the long-distance phone bill was $17.95?

f. What range of minutes can you talk each month if you don't want to spend more than $18.45?

7. Solve the system by substitution method: $\begin{cases} 3x + 2y = 0 \\ 6x + 2y = 5 \end{cases}$.

8. In an isosceles triangle, one angle is 10 less than three times the measure of one of the equal angles. Find the measure of each angle. (*make sure to use 3-steps format.*)

9. Solve the system by elimination method: $\begin{cases} \dfrac{1}{3}x - \dfrac{1}{2}y = -5 \\ -\dfrac{4}{5}x + \dfrac{6}{5}y = 1 \end{cases}$.

10. A hair stylist combines 12 oz of shampoo that is 20% conditioner with an 8-oz bottle of pure shampoo. What is the percent concentration of conditioner in the 20-oz mixture? (*make sure to use 3-steps format.*)

11. Solve the system: $\begin{cases} x + y + z = -3 \\ 2x - 2y - z = -7 \\ -3x + y + 5z = 5 \end{cases}$.