

Instructions: Please work the following problems on other pieces of paper. You must show all work and calculations in order to receive full credit. I would prefer to collect your assignments in class on the day it is due, but I will accept it as late as 5:00 PM on the due date. Assignments submitted later will receive 50% credit. (Note: There are problems on the back, so don't forget to flip the page over.)

1. Does the relation given in the following table represent a function? You must give an explanation of your answer in order to receive full credit.

Domain	Range
-2	3
-1	-4
0	-8
1	3
2	11

2. Does the relation given in the following table represent a function? You must give an explanation of your answer in order to receive full credit.

Domain	Range
3	-3
4	-1
-1	1
3	3
-2	5

3. Let $f(x) = \frac{3x-7}{x+3}$, and $g(x) = 2x^3 - x^2 + 8$. Evaluate the following expressions and write the solution as an ordered pair, if possible. If not possible, explain why.

(a) $f(13)$.

(b) $f(-3)$.

(c) $g(-2)$.

4. Determine the domain of the function $f(x) = \frac{x^2 - 49}{x - 7}$ algebraically, and write the domain using interval notation.

5. Section 1.1 #44.

6. Section 1.1 #48.

7. Determine the domain of the function $f(x) = \frac{12x}{x^2 - 36}$ algebraically, and write the domain using interval notation.

8. Section 1.1 #56.

9. Section 1.1 #64.

10. Section 1.2 #22.
11. Do exercise #29 in Section 1.2, but use the model to determine the year the average weekly earnings was \$441.86 (instead of \$599.36).
12. Consider the points $P = (5, 2)$ and $Q = (-3, -2)$.
- Find the average rate of change between P and Q .
 - Write the equation of the line containing P and Q in point-slope form.
 - Write the equation of the line containing P and Q in slope-intercept form.
 - Find the x and y intercepts of the line.
13. Find the x and y intercepts of the graph of the linear equation $3(x - 1) + 13 = 5(y - 1)$.
14. Section 1.3 #44.
15. Find the linear cost function, $C(x)$, if the variable costs are 21 dollars per unit and the fixed costs are \$3400.
16. Section 1.3 #60.
17. (Similar to Section 1.3 #77) Consider the price schedule for the repair of an automobile.

Hours Labor	Repair Cost (in dollars)
0	40
2	150
5	315

- How much is the fixed cost? Explain how you know this.
 - How much does the repair cost increase for each additional hour of labor? How do you classify this kind of cost?
 - Write a linear repair cost function, $C(x)$, where x represents the hours of labor and $C(x)$ represents the repair cost, in dollars.
 - What would the repair cost be if the car took 6.5 hours to fix?
18. Section 1.3 #78.