

## HW 3-3: Construct Functions

1. You have \$1200 in your bank account. You deposit (put money in) \$320 from your job into your account every week. Write an equation that models how much money is in your account ( $y$ ) depending on how many weeks you work ( $x$ ).

Rate of Change:  $\$320$  per week

Initial Value:  $\$1200$

Equation:  $y = 320x + 1200$

2. You start a hike with a group of friends 10 miles from home. You and your group hike going 7 miles per hour. Write an equation that models how far from home you are ( $y$ ) depending on how many hours you have hiked ( $x$ ).

Rate of Change:

Initial Value:

Equation:

3. You get to go skydiving!!! After you pull your parachute out you are 5000 feet above ground. Once your parachute is out you fall 6 feet per second. Write an equation that models how many feet above ground you are ( $y$ ) depending on how many seconds have passed since you pulled out your parachute ( $x$ ).

Rate of Change:  $-6$  feet per second

Initial Value:  $5000$  feet

Equation:  $y = -6x + 5000$

4. Jill is going to finish making a beaded necklace that her mother already started. When her mother gave it to her she had 11 beads on the strand. Jill adds 10 beads per minute. Write an equation that models the number of beads on the necklace ( $y$ ) depending on the number of seconds that have passed since Jill got the necklace from her mother ( $x$ ).

Rate of Change:

Initial Value:

Equation:

5. Jack is on a road trip with David. David has already driven 100 miles, and Jack will drive 65 miles per hour. Write an equation to calculate how many miles they have driven according to how long Jack has driven.

Rate of Change:  $65$  miles per hour

Initial Value:  $100$  miles

Equation:  $y = 65x + 100$

The table shows the cost to a family for their satellite service in their home. The satellite company charges a one-time installation fee and an additional charge per month.

Month ( $x$ )	Cost, \$ ( $y$ )
1	85.95
2	121.90
3	157.85
4	193.80
5	229.75

6. Identify the constant rate of change for the situation.
7. Identify the initial value for the situation.  
 $\$50$  (installation fee)
8. Write the equation to model the situation, where  $x$  represents time in months and  $y$  is the total cost.
9. What does the point  $(3, 157.85)$  mean in the context of the situation?
  - a.  $x$ -value describes: For 3 months
  - b.  $y$ -value describes: it would cost \$157.85
10. What values of the domain don't make sense for this situation?

Chloe competes in a jump rope competition. Her average jumping rate is 225 jumps per minute.

11. Identify the constant rate of change for the situation.  
 $225$  jumps per minute
12. Identify the initial value for the situation.
13. Write the equation to model the situation, where  $x$  represents time in minutes and  $y$  is the total number of jumps.  $y = 225x$
14. What does the point  $(3, 675)$  mean in the context of the situation?
  - a.  $x$ -value describes: \_\_\_\_\_
  - b.  $y$ -value describes: \_\_\_\_\_
15. What values of the domain don't make sense for this situation?  
 Domain is  $x$  &  $x$  represents time in minutes.

So, Negatives wouldn't make sense as  $x$  values because that would be negative time.

Manuel is saving money for college. The equation  $s = 50t + 250$  describes this situation, where  $s$  represents the amount of money in his savings account, and  $t$  represents the number of months since he opened the savings account.

16. Identify the constant rate of change for the situation.

17. Identify the initial value for the situation.

$\$250$

18. What does the point  $(10, 750)$  mean in the context of the situation?

a.  $x$ -value describes: \_\_\_\_\_

b.  $y$ -value describes: \_\_\_\_\_

19. What values of the domain don't make sense for this situation?

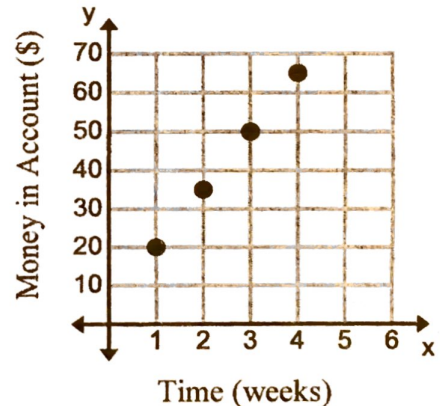
Domain is  $x$ .  $t$  &  $x$  are the same in this story.  $t$  represents # of months. Negatives & decimals wouldn't make sense for  $x$  values in this story.

Kara is saving money for a school trip. The graph shows how much money she has saved over a set of weeks.

20. Identify the constant rate of change for the situation.

21. Identify the initial value for the situation.

$\$5$



22. Write the equation to model the situation, where  $x$  represents time in weeks and  $y$  is the amount of money in her account.

23. What does the point  $(0, 5)$  mean in the context of the situation?

a.  $x$ -value describes: ~~0~~ At 0 weeks

b.  $y$ -value describes: Kara has saved  $\$5$   
 $\rightarrow$  starts with  $\$5$ .

24. What values of the domain don't make sense for this situation?

The table shows the cost to ride the rides at Lagoon for one day, where  $x$  represents the number of rides you ride on and  $y$  represents the total cost.

Number of Rides ( $x$ )	1	4	9	10	12
Cost, \$ ( $y$ )	49.95	49.95	49.95	49.95	49.95

25. Identify the constant rate of change for the situation.

$\$0$  per ride

26. Identify the initial value for the situation.