

Function Basics Day 3 HW

Use the given functions to find each value. Do NOT use a calculator!

$$a(x) = -2x^2 + 4 \quad b(x) = |9x - 1| \quad c(x) = \frac{-3x + 1}{4}$$

1) $b(-10)$

2) $a(4)$

3) $a(-3)$

4) $c(3)$

5) $c(22)$

FOR 6-8:

Write a rule in function notation to model the situation. Describe what the input and output represent.

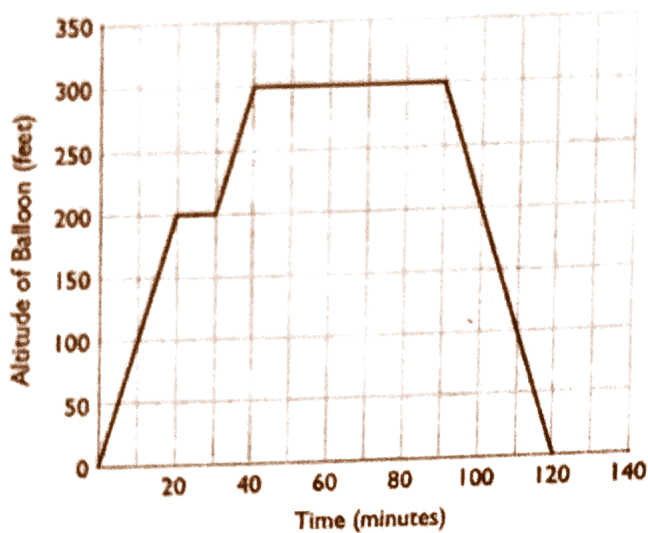
6) At a vacation resort, you can rent a personal watercraft for \$20 per hour, plus an insurance charge of \$35.

7) Pedro is making chocolate chip cookies. He has a bag of chocolate chips that contains 250 chocolate chips. He is very particular about his cookies, so he makes sure that there are exactly 7 chocolate chips in each cookie. (For this one, your rule should calculate the **number of chocolate chips left in the bag**).

8) Same situation as #12, but this time, make your rule calculate the **total number of chocolate chips used**.

There is a back!

The graph below shows the altitude during a hot air balloon ride with Berkshire Balloons. The altitude of the hot air balloon is a function of time.



- 9) When is the balloon at 200 feet?
- 10) For how long are you flying at an altitude at or above 200 feet?
- 11) Find $f(30)$ and explain what it means in the context of the problem.
- 12) If $f(x) = 100$, find all values of x and explain what they mean in the context of the problem.
- 13) For what values of x does $f(x) = 300$?

Function Basics Day 3 HW

Use the given functions to find each value. Do NOT use a calculator!

$$a(x) = -2x^2 + 4 \quad b(x) = |9x - 1| \quad c(x) = \frac{-3x + 1}{4}$$

1) $b(-10)$

$$b(-10) = |9(-10) - 1|$$

$$b(-10) = |-91|$$

$$b(-10) = 91$$

2) $a(4)$

$$a(4) = -2(4)^2 + 4$$

$$a(4) = -32 + 4$$

$$a(4) = -28$$

3) $a(-3)$

$$a(-3) = -2(-3)^2 + 4$$

$$a(-3) = -18 + 4$$

$$a(-3) = -14$$

4) $c(3)$

$$c(3) = \frac{-3(3) + 1}{4}$$

$$c(3) = \frac{-9 + 1}{4}$$

$$c(3) = \frac{-8}{4}$$

$$c(3) = -2$$

5) $c(22)$

$$c(22) = \frac{-3(22) + 1}{4}$$

$$c(22) = \frac{-66 + 1}{4}$$

$$c(22) = \frac{-65}{4}$$

$$c(22) = \frac{-65}{4}$$

FOR 6-8:

Write a rule in function notation to model the situation. Describe what the input and output represent.

- 6) At a vacation resort, you can rent a personal watercraft for \$20 per hour, plus an insurance charge of \$35.

$$f(x) = 20x + 35$$

Input = # of hours
Output = Cost of watercraft

- 7) Pedro is making chocolate chip cookies. He has a bag of chocolate chips that contains 250 chocolate chips. He is very particular about his cookies, so he makes sure that there are exactly 7 chocolate chips in each cookie. (For this one, your rule should calculate the **number of chocolate chips left in the bag**).

$$f(x) = 250 - 7x$$

Input = # of cookies
Output = # of chocolate chips left

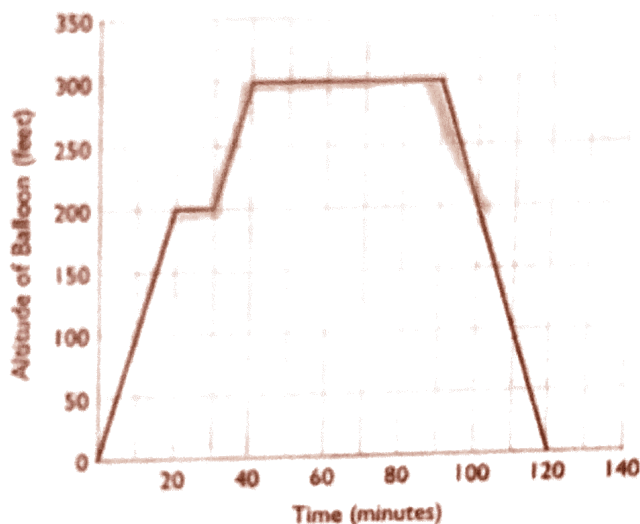
- 8) Same situation as #7, but this time, make your rule calculate the **total number of chocolate chips used**.

$$f(x) = 7x$$

Input = # of cookies
Output = # of chocolate chips used

There is a back!

The graph below shows the altitude during a hot air balloon ride with Berkshire Balloons. The altitude of the hot air balloon is a function of time.



9) When is the balloon at 200 feet? *between 20 + 30 minutes and also at 100 minutes*

10) For how long are you flying at an altitude at or above 200 feet?

between 20 + 100 minutes so 80 minutes

11) Find $f(30)$ and explain what it means in the context of the problem.

$f(30) = 200$ after 30 minutes, the balloon is at 200 feet.

12) If $f(x) = 100$, find all values of x and explain what they mean in the context of the problem.

*$f(10) = 100$ after 10 minutes the balloon is at 100 ft
 $f(110) = 100$ after 110 minutes the balloon is at 100 ft.*

13) For what values of x does $f(x) = 300$?

$$40 \leq x \leq 90$$