



Fall 2021 Precalc Lesson 15.1

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Do now

be sure to: take a seat near the front of the room. Get out your binder. Copy the **goal** and **date**. Answer the questions below, with at least one complete sentence for each:

1. Compare (A) and (B) to the right. How are they similar? How are they different? Use precise mathematical language.
2. How could you alter the code in (A) so that $f(x)$ returns $x + 5$ if x is greater than 5?

A.

$$f(x) = \begin{cases} x + 2 & \text{if } x < 0, \\ x & \text{if } x = 0, \\ x - 2 & \text{if } x > 0 \end{cases}$$

B.

```
fun f(x):  
  ask:  
    | x < 0 then: x + 2  
    | x == 0 then: x  
    | x > 0 then: x - 2  
  end:  
end
```



B24 rules

Welcome to our new room, B24! Please read the information below:

1. When you come in, please find a seat at a desk (if one's available) or one of the **six** closest desks to the screen. **Do not sit in the back of the classroom.** We'll conduct the do now and mini lesson from here.
2. When I dismiss you for independent work, find a sit at one of the computer workstations.
3. **No food or drink by the computers.**
4. At the end of the period, you'll be directed to assemble for the exit ticket/debrief. Log out of your computer, and **quietly** return to a seat near the front.

class: precalc **goal:** HDW use piecewise functions to control player movement in our video game?



framing

- **what:** use piecewise functions to control player movement in our video game
- **why:** this gives us more control over how the player moves in the game
- **where to:** finish our game this week



Writing to learn: warm up

be sure to: take a seat at your computer, next to your partner. Keep your **binder** out. Log onto code.pyret.org and open your saved **Game File**. Answer the questions below in your binder. .:

1. Review your `update-danger` and `update-target` functions. What determines the `speed` and `direction` for these characters?
2. Now examine the `contract` for `update-player`. What does the contract tell you about this function?
3. What other questions do you have about `update-player`?



Coding to learn: live coding

Be sure to: Follow along with Dr. O'Brien. Try to stay one step ahead! Let's use our update-player function to control the player's movements!

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Coding to learn: Activity

Be sure to: Carefully follow the instructions below:

Now is your time to customize your game! Try implementing some of the following features, or make your own!

- **Warping** - program one key to "warp" the player to a set location, such as the center of the screen
- **Boundaries** - change update-player such that PLAYER cannot move off the top or bottom of the screen
- **Wrapping** - add code to update-player such that when PLAYER moves to the top of the screen, it reappears at the bottom, and vice versa
- **Hiding** - add a key that will make PLAYER seem to disappear, and reappear when the same key is pressed again

Reminder: Use # to add comments to code!

Adding useful comments to code is an important part of programming. It lets us leave messages for other programmers, leave notes for ourselves, or "turn off" pieces of code that we don't want or need to debug later.

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reflection

Be sure to: get out a sheet of loose leaf paper. Write your name and the date on top. Answer each question below with a complete sentence. Be prepared to hand in as you leave!

1. What would it take to make the player move left and right?
2. Why can't we do this without changing the contract?