Fall 2021 Precalc
Lesson 15.4

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Herbert H. Lehman High School
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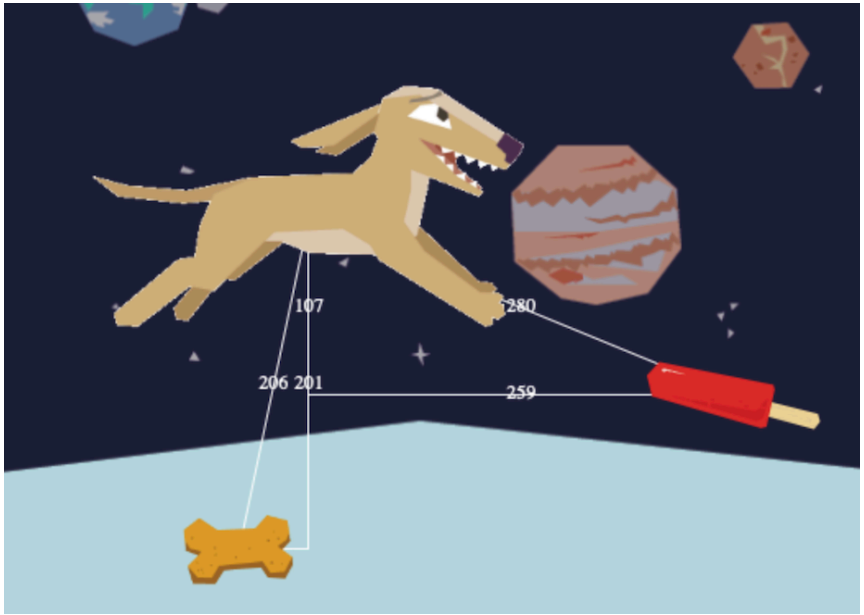
Do now

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 complete sentences:

Examine the image to your right.

1. What do you notice about the image? Write down at least two things.
2. What questions do you have? Write down at least one thing.
3. What do you think the relationship is between the different numbers you see?



class: precalc **goal:** HDW implement the Pythagorean theorem in Pyret to calculate distance?

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.

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framing

- **what:** implement the Pythagorean theorem in Pyret to calculate distance
- **why:** this lets us add effects for when the characters collide
- **where to:** finish our game this week

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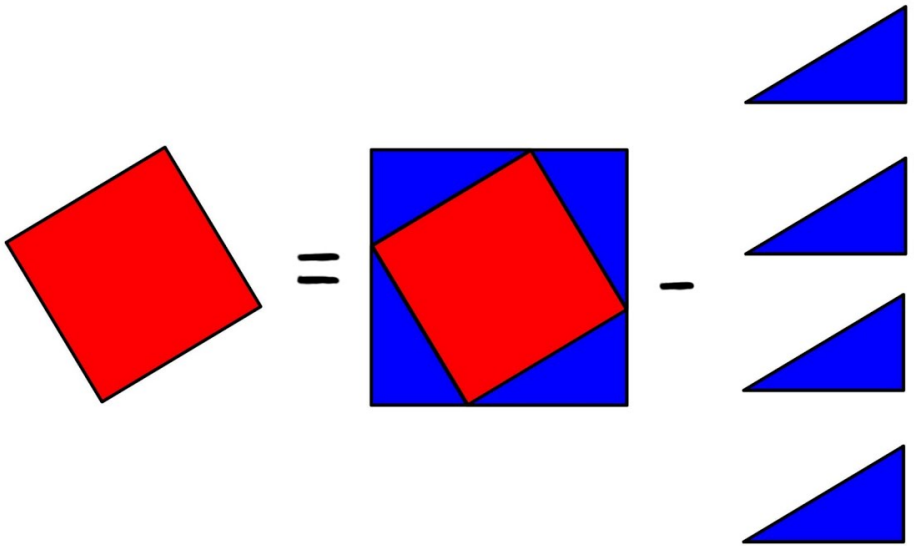
Mini-lesson: Pythagorean theorem

Be sure to:

1. Watch this four minute video.
2. Write down any questions you have.



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Mini-lesson: Pythagorean theorem

How could we use the Pythagorean theorem to find the distance between these two characters?

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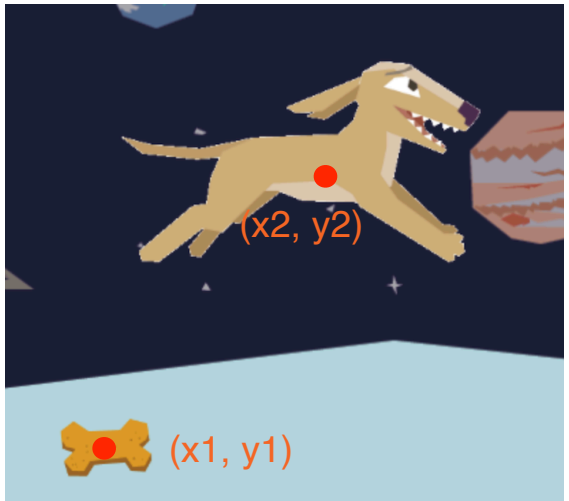
Mini-lesson: Pythagorean theorem

The distance formula:

$$d = \sqrt{(x2 - x1)^2 + (y2 - y1)^2}$$



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Coding to learn: Activity

What you should have done with your video game:

Be sure to:

1. Read through the video game expectations (to your right).
2. Move to your computer, open your saved game file. If your game doesn't yet meet expectations, start working on it!
3. When you're done with that see the next slide (on Google Classroom). Work on extending your game.
4. If you have any questions, raise your hand!

4. **Use the Pythagorean theorem to finish the `distance()` function. The finish the `is-collision()` function.**

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Coding to learn: live coding

Be sure to:

Open the Standing Meet Link on Google Classroom. This will make it easier to follow along from your computer.

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: extension Activity

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.

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?

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