Hawkins, Indiana

Member 1: Camilla Jemiri
Member 2: sofia blazQuez
Member 3: Eleanor Palmer
Member 4: Evelyn Rufino-Sanchez

Introduction:

   Welcome to Hawkins, Indiana where you can find all of your favorite Stranger Things pals! There are many places to eat, shop, and play. We have an arcade- not just any arcade! The *PALACE ARCADE.* Stop by the Pan Dulce Cart or the Clothing Store on your way to Starcourt Mall! Getting bored of the Right Side Up? Visit the Upside Down for some action! Your favorite stores are all there, but with a twist! If you are sick of regular bright colors, take a gander down to the Emo Store on Eddie Ave. Too much noise? Instead of going over to Bob's Radio Shack, take a peek inside Bob's Silent Shack. You'll love it here. Oh, and make sure to watch out for Russians!

Designer: Camilla Jemiri

Hi there! Welcome to the upper western part of Hawkins. In this fine town, there's so much to explore and see. Want to learn a lesson? Go down to Hawkins high. Don't have any clothes for school!? Go on down to our clothing store. Afterward take a stroll through our garden that's been standing for 100 years. And finish your night off at our classic Palace arcade. All these delight are located between upside ave and mulberry st, have fun!

Discuss the highlights of this quadrant (at least 4). Highlights could include favorite sites for tourists in your neighborhood, key historical facts, etc.

Map and Instructions of Quadrant:
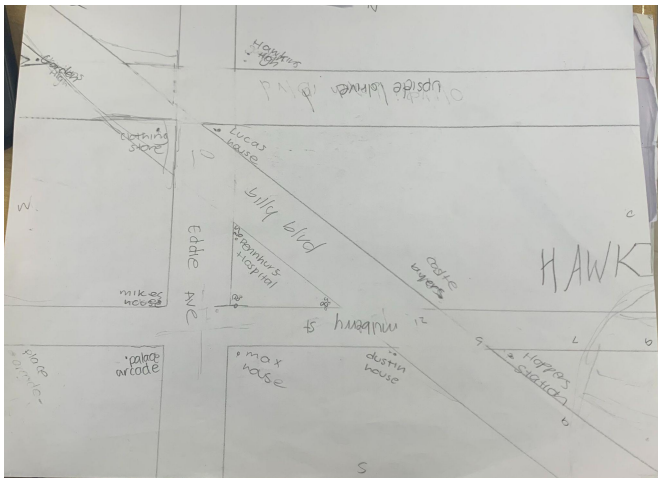
Things in the western part of Hawkins!
- Hawkins high
- Clothing store
- Mike's house
- Palace arcade
- Castle buyers
- Pennhurst hospital
- Hoppers station

- Dustin's house
- Max house
- Lucas house
- Garden

Want to look around Hawkins here's some instructions:

☐ Two main roads going east to west are parallel to each other. The road to the north is upside ave and the one to the south is mulberry st

☐ The two parallel streets are perpendicular to Eddie ave, which cuts through them towards their west ends.

☐ Our fourth road, billy blvd, north of upside ave. Heads in the northwest direction intersect with mulberry st in the southeast, creating an acute angle and obtuse angle with mulberry st. Eddie ave, billy blvd, and mulberry st create a small triangular piece of land.

☐ At the obtuse vertical angles formed by billy blvd and mulberry st, is dustins house (1) and will's hideout called castle buyers (2).

☐ Castle buyers form a linear pair with Pennhurst hospital (3) to the west

☐ On the southwest corner of mulberry st and Eddie ave is Max's house (4). On the corresponding corner of upside drive is Hawkins high

☐ If billy blvd is a transversal through upside dive and mulberry st, mike's house (5) and Lucas house (6) form alternate interior angles

☐ Vertical to castle buyers is Dustin's house (7)

☐ Lucas House and Pennhurst hospital are consecutive angles

☐ In the south east there is an acute triangular plot of land where hoppers station stands

☐ Palace arcade (8)is alternate exterior to hawkins high

☐ At the northwest intersection of eddie ave, upside drive, and billy blvd. Lucus house is located at the acute angle

☐ At the southwest corner of mulberry st and billy blvd, Dustin's house is located at a obtuse angle

☐ Our clothing store (10) is located at a a right angle, on the other side of the transversal, across from lucas house

☐ The palace arcade forms an adjacent angle with mikes house

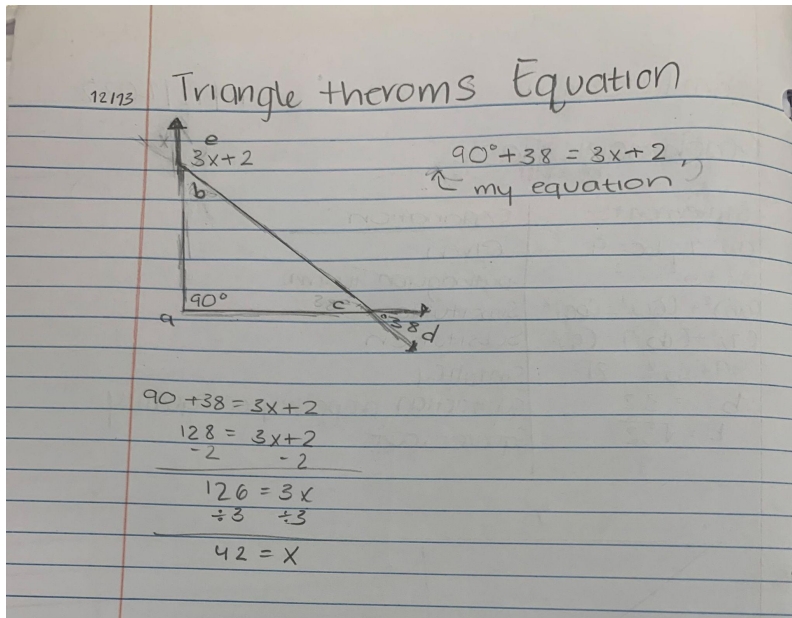☐ In the northeast coner of the mapout Garden (11) ia a adjenctangolle with Hawkins High

Triangle and Triangle Theorems:
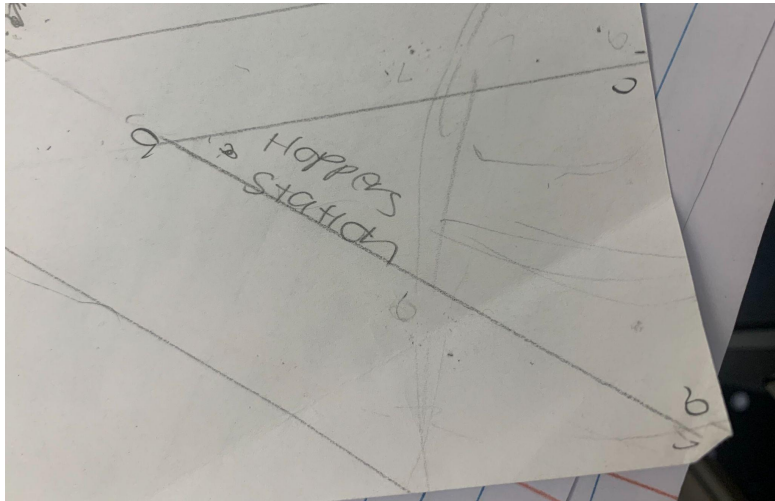
Statements	Explanation
ac= 7, ab= 9	Given
$a^2+b^2=c^2$	Pythagorean theorem
$(ac)^2 + (cb) = (ab)^2$	Substitution
$(7)^2+(b)^2= (9)^2$	Substitution
$49 + b^2 = 81^2$	Simplify
$b^2 = 32$	Subtraction property of equality

b = √32	Square Root

Statements	Explanations
$< a = 90°$ $< d = 38°$ $< e = 3x + 2$	Given
c = d	Vertical Angles
$90 + d = e°$	Exterior Angle Sum Theorem
90 + 38 = 3x + 2	Substitution
128 = 3x + 2	Combine like terms
126 + 3x	Subtraction property of equality
42 = x	Division property of equality

Walk to the East side of town for some more cool spots!

Designer: sofia blazQuez

Welcome to the East Right side up! We have so many sites that we know you'll love. Starting out Max And Will some of your favorite neighbors live on this side of the gate. I must also bring up a few of our favorite hangout spots! Feeling hot? Cool down with a banana boat at Scoop's Ahoy with Steve Harrington, the Hawkins Hottie! Lactose intolerant? Feel free to stop by our Pan Dulce cart. Both restaurants are located at the Mulberry Street and Alexi Ave intersection. We have so many other cool sites here that we know you'll love!

**Map and Instructions of Quadrant:**
- Starcourt Mall
- 711
- Bob's Radio Shack
- Will's house
- Joyce's General Store
- Hawkins Middle School
- Hopper's Cabin
- Scoop's Ahoy
- Pan Dulce Cart
- Swimming Pool
- Hawkins Lab

Lost? Use these perfectly crafted instructions of Hawkins, Indiana to find your way!

- The two large roads go East to West and are parallel to each other. The southern road is Mulberry Street; the Northern road is Upside drive
- Both parallel roads are perpendicular to Harrington Highway, Harrington Highway is an Eastern transversal through the two parallel roads
- Alexi Ave runs from the Northeast Corner down the middle of my town to the South-West, It intersects Mulberry Street and Upside Drive
- In the Mulberry Street and Alexi Ave intersection, the Northwest obtuse angle is Hawkin's Swimming Pool
- Hawkins Swimming pool forms a vertical angle with the Pan Dulce Cart
- The Pan Dulce Cart and Hawkins lab are linear pairs
- Hawkins Lab and Scoops Ahoy are vertical angles
- If Harrington Highway is a transversal, Hawkins middle and Murry's House are alternate exteriors; Hawkins Middle is in the Northwest, and Starcourt Mall is in the Southeast.
- Starcourt Mall and Bob's radio shack are adjacent angles
- Will's House and Scoops Ahoy form a right triangle
- Hawkins Middle and Will's House are corresponding angles
- Will's House and 711 are a linear pair
- Hopper's Cabin and Will's House are consecutive angles, Hopper's Cabin is inside of an acute angle
- Will's House and Joyce's General Store are Alternate interior angles, Joyce's General Store is inside of the Eastern right angle that Upside Drive and Billy Boulevard create

Triangle and Triangle Theorems:

Before Scoop's Ahoy and Will's house were constructed we used the Pythagorean theorem to figure out the hypotenuse of the triangle. This allowed us to properly space out Will's House and Scoop's Ahoy within triangle MEN.
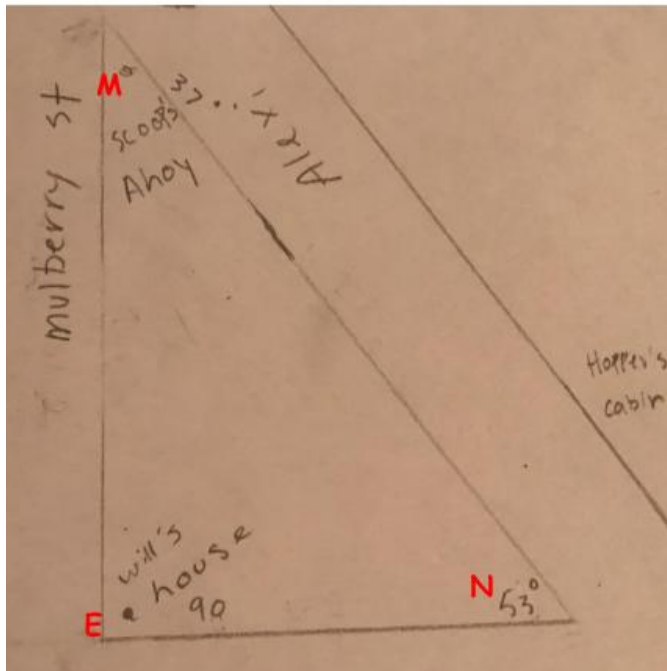
Statements	Explanation
$ME = 8cm, \ EN = 6.2cm$	Given
$a^2 + b^2 = c^2$	Pythagorean Theorem
$(ME)^2 + (EN)^2 = (NM)^2$	Substitution
$(8)^2 + (6.2)^2 = (NM)^2$	Substitution
$64 + 38.44 = (NM)^2$	Simplify
$102.44 = (NM)^2$	Combine Like Terms
$10.12 = \ NM$	Square Root

Here we used the Triangle Sum Theorem and the Exterior Angle Sum Theorem to figure out the missing angle degrees on Alexi Ave and Mulberry Street!
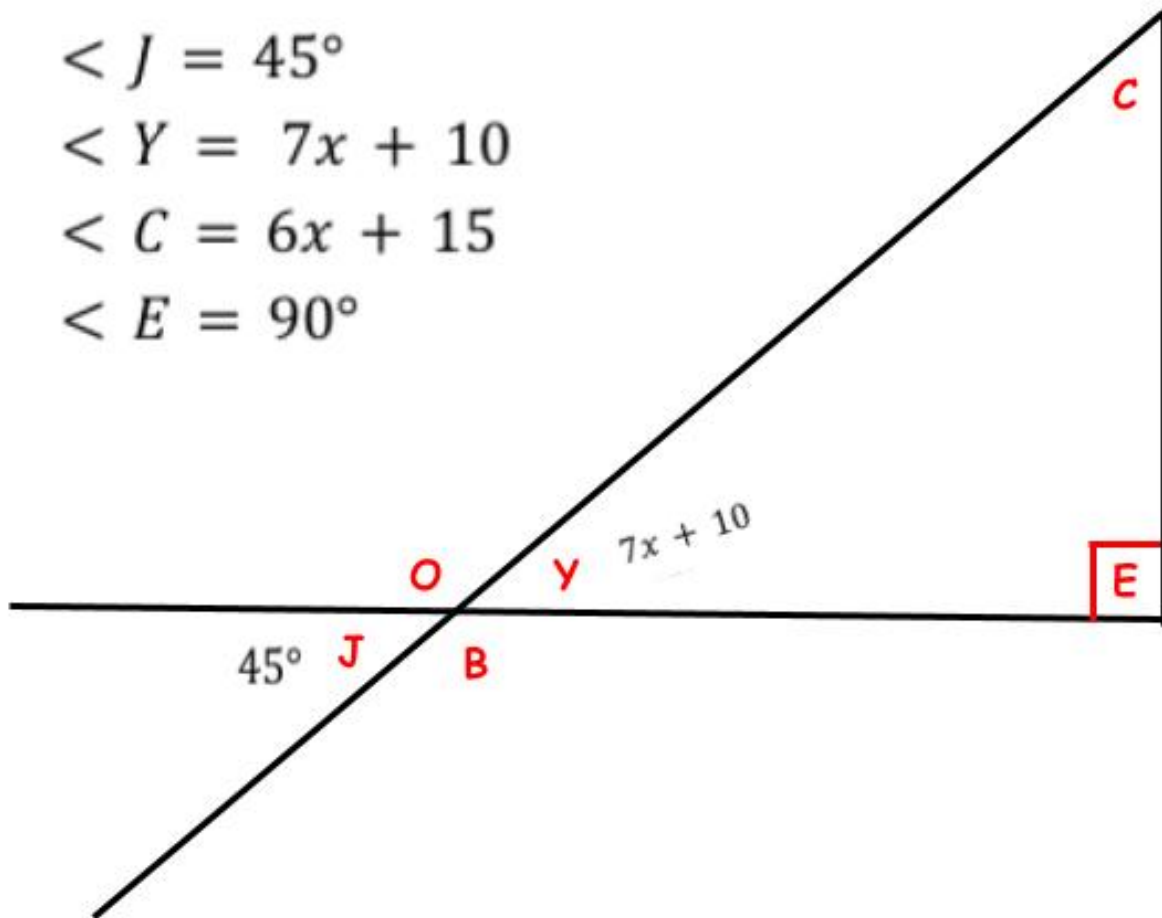
$< J = 45°$
$< Y = 7x + 10$
$< C = 6x + 15$
$< E = 90°$

C

$7x + 10$

O   Y

E

45° J   B

Statements	Explanations
$< J = 45°$ $< Y = 7x + 10$ $< E = 90°$	Given
$Y = J$	Vertical Angles
$7x + 10 = 45$	Substitution

$x = 5$	Simplify
$7(5) + 10 = J$	Simplify
$J = 45°$	Simplify
$E + C = O$	Exterior Angle Sum Theorem
$45° + 90° = 135°$	Substitute
$< O/B = 135°, \ < Y/C = 45°$	Transitive property

Getting tired of the Right-Side up? Travel through the gate to the Upside Down!

Designer: Eleanor Palmer

Welcome to the Eastern Upside-Down! Here there are many things that you can do to keep yourself occupied. Stop in and say Hi at the Scary Mom Store on Harrington Highway. If you ever need anything fixed, Drive up Harrington Hwy and visit Bob's Silence Shack on Mulberry St! Feeling hungry? Drop by the 8-12 for a nice snack before heading over to the Private Pool on Mulberry St and Billy Blvd to take a refreshing swim! By the end of the day, if you need a place to stay, Hopper's Hot Chocolate on the corner of Billy Blvd and Upside Down Drive there will always be a place to cozy up!

**Map and Instructions of Quadrant:**
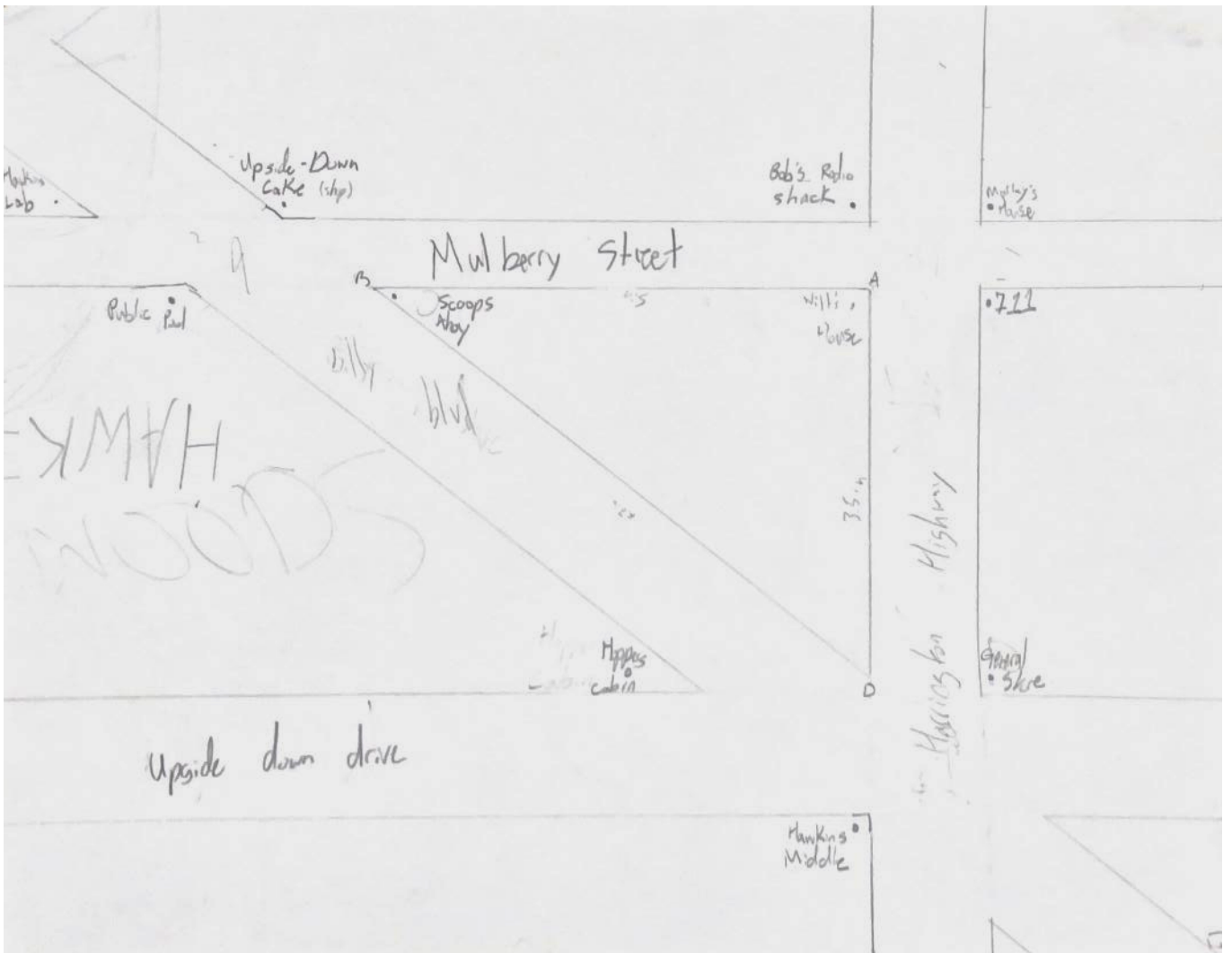
The cool things you can find in the upside down:
- Hawkins Lab
- Upside-down Cake Shop
- Private Pool
- Scoops Away
- Hopper's Hot Chocolate
- Bob's Silent Shack
- Not Will's House
- 8-12
- Starcourt Mall
- Scary Mom Store
- Haunted Hawkins Middle School

- The roads that run parallel to each other east and west are Mulberry St. and Upside Down drive. Mulberry St. is to the north and Upside down drive is to the south
- Harrington Highway runs north and south and is perpendicular to Upside Down drive and Mulberry St. It is on the east side of the quadrant.
- Billy Blvd is a transversal through Mulberry St. & Upside Down Drive. It runs from the top west corner to the bottom east corner of the quadrant. It intersects between Mulberry St, Upside Down drive, and Harrington Highway
- Harrington Highway and Mulberry St. Intersect in the Northeast corner. Starcourt Mall is located in the Northeast section.
- Not Will's House is a vertical Angle to Starcourt Mall
- 8-12 and Scary Mom Store are consecutive angles
- The Private Pool is at an obtuse angle on Mulberry street and Billy blvd

- Hawkins Lab is at an acute angle made by billy blvd and Mulberry St
- Bob's Silent Shack is at a right angle formed by Mulberry St and Harrington Highway
- The Private Pool and Scoops Away are adjacent angles
- Hawkins lab and the Upside-down Cake Shop form a linear pair
- Hawkin's Lab and Hopper's Hot Chocolate are Corresponding angles
- Upside-down Cake shop and Haunted Hawkins middle are alternate exterior angles.
- Scoops Away and Hopper's Hot Chocolate are alternate interior angles

Triangle and Triangle Theorems:

When Not Will's House was replacing Will's House and Scoops Away was replacing Scoops Ahoy, the Pythagorean Theorem had to be used to find out where to reconstruct the buildings and how far away they needed to be.
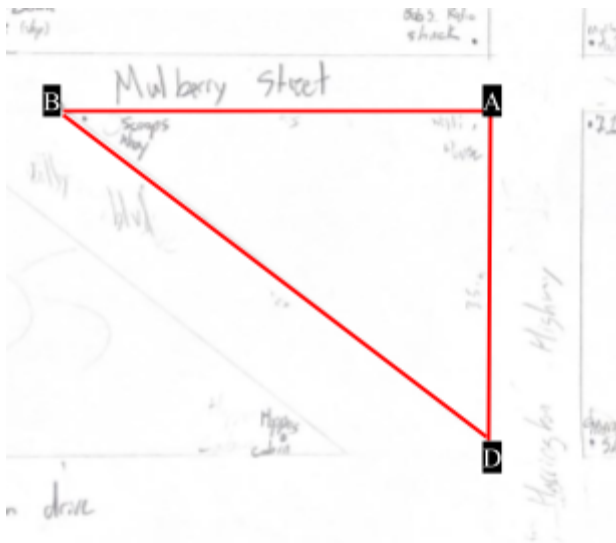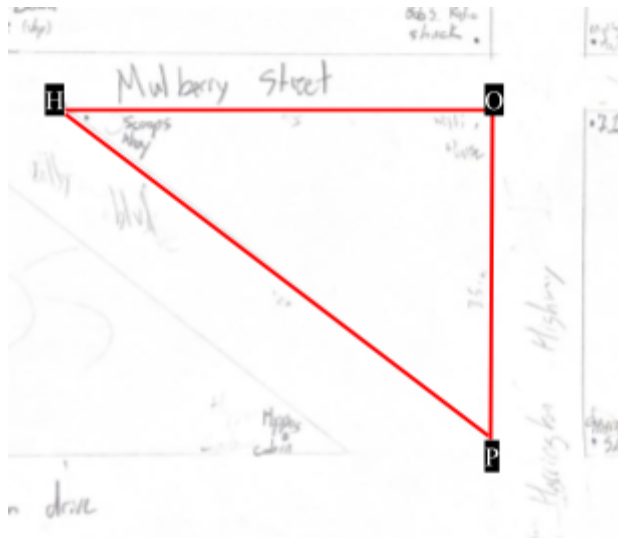

Statements	Explanation
BA = 5in AD = 3.5in	Given

$a^2+b^2=c^2$	Pythagorean theorem
$(BA)^2 + (AD)^2 = (BD)^2$	Substitution
$5^2+3.5^2=c^2$	Substitution
$25 + 12.25 = c^2$	Simplify
$37.25 = c^2$	Combine Like Terms
$6.10 = c$	Square Root

Triangle Angle Sum Theorem:

To figure out if the Upside Down could add another building in angle P, we needed to find the angle using the Triangle Angle Sum Theorem.

Statements	Explanation
$< H = 70° \quad < O = 90° \quad < P = x$	Given
$H + O + P = 180°$	Triangle Angle Sum Theorem
$70 + 90 + x = 180°$	Substitution
$70 + 90 = 160$	Combine Like Terms
$180 - 160 = 20$	Subtraction
$x = 20$	Simplify

Now travel into the other part of the upside down!

Designer: Evelyn Rufino-Sanchez

Hello fellow people, this is Hawkins Upside down in the Westeast .It's spooky, dark, and so terrifying…OoOoOoO. Come on in, but think about if you will make it out. Now one cool thing about the upside down is the Dark Arcade so many video games to choose from, we got drinks, food, all the goodies, you will be mind blown. Next stop, Do you have a terrible fashion style? If so, step right into the Emo store. It's the best clothing store in Indiana. And has a great deal! Now at Will's hideout, that's where Will hides when Vecna is having a tantrum, silly little Vecna. Not to worry though, Will has card games, you will always be entertained, in the upside down.

**Map and Instructions of Quadrant:**
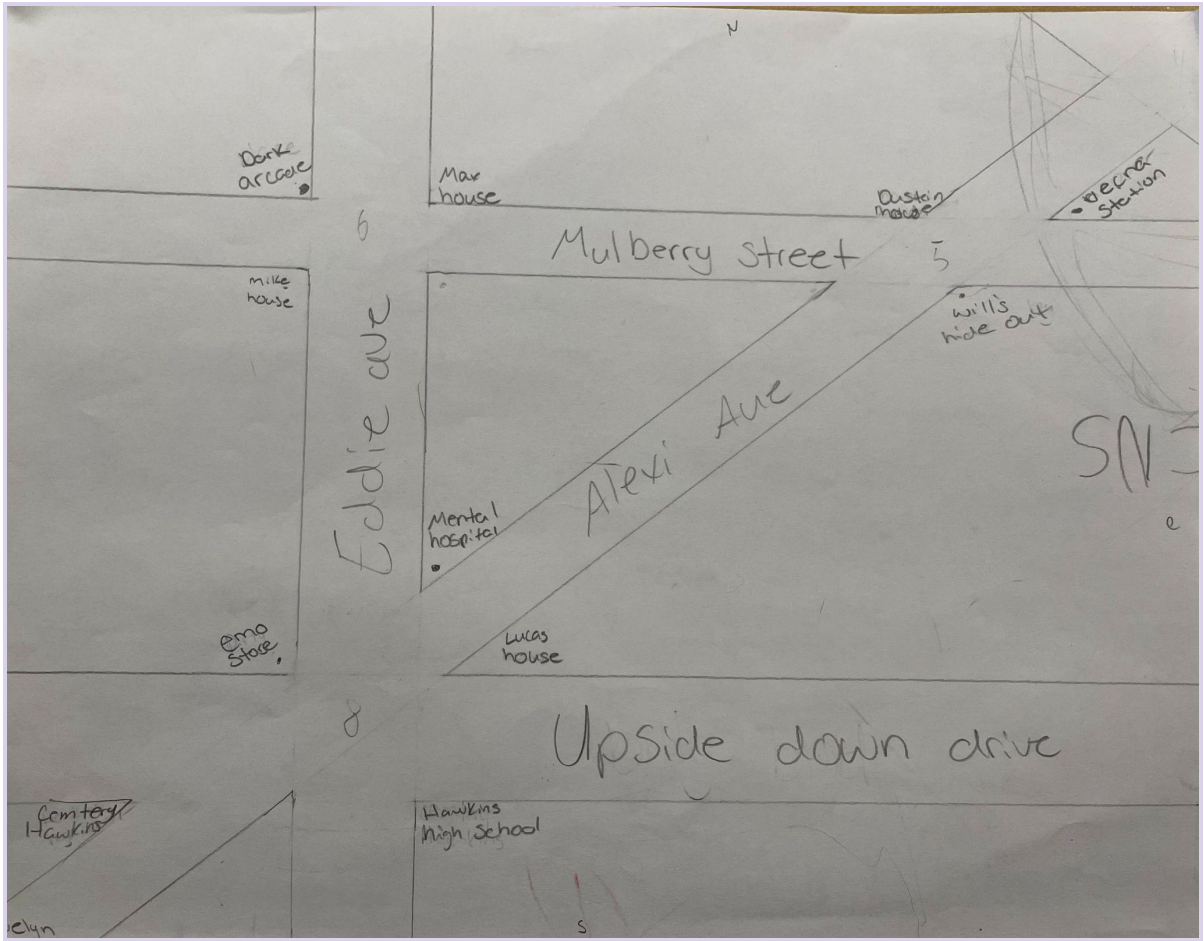
So much cool stuff in the upside down. Are you not afraid of the dark? Come to Hawkins upside down at your own risk. We have……

- Dark Arcade
- Mike's house
- Max's house
- Lucas house
- Dustin's house
- Will's hideout
- Mental hospital
- Emo store
- Hawkins High School
- Vecna station
- Hawkins Cemetery

- The two main roads are parallel to each other.The road to the North is Mulberry street. And the one to South is Upside Down drive. They are horizontal to each other.
- The two parallel roads are perpendicular to Eddie ave, also vertical which cuts through upside down and Mulberry st.
- The final road is Alexi Ave, southwest heading into northeast direction. Intersecting Eddie ave in southwest creating an acute angle.
- Towards Alexi Ave down in the south west, there's a vertical angle, Hawkins Cemetery and Lucas house.
- At upside down drive you will see a right angle and it's called Hawkins high school.
- As we go up Eddie Ave at northwest the corresponding angles are Max house and Mental hospital where the transversal intersects.
- On Mulberry street the interior angles are Mike's house and The Emo Store. Mike's house is in the North, The Emo Store is in the south
- on Alexi Ave is a consecutive angle and we see the Mental hospital.

- The linear pairs at northwest are Dark Arcade and Mike house.
- As we go east on road Mulberry st, there's an obtuse angle, Dustin's house.
- Dustin's House and Will's Hideout are vertical angles
- On Mulberry st there's an Adjacent and it's called Will's hideout.
- On northeast Mulberry, Vecna Station is an alternate exterior pair with Hawkins High School.

Triangle and Triangle Theorems:

Show all work including relevant diagrams and calculations. Make sure to discuss your process and your answer in the context of your town map.
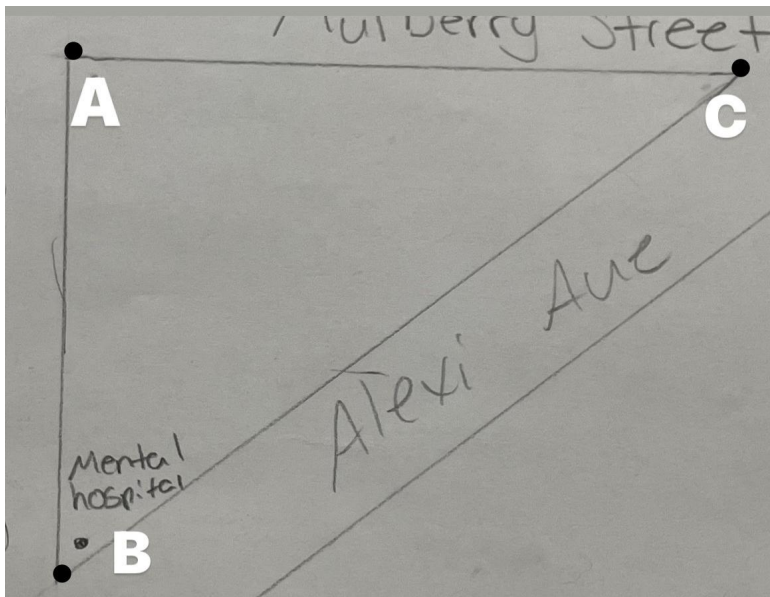
Statements	Explanation
$AB = 3, AC = 4$	Given
$a^2 + b^2 = c^2$	Pythagorean Theorem
$(AB)^2 + (AC)^2 = (BC)^2$	Subitution
$(3)^2 + (AC)^2 = (BC)^2$	Substitution
$9 + 16 = (BC)^2$	Smplify
$25 = (BC)^2$	Combine like terms
$5 = BC$	Square root

Statements	Explanations
$< A = 90°$ $< B = 55°$ $< C = 3x + 5$	Given
$< A +< B +< C = 180$	Triangle Theorem
$150 + 3x = 180$	Combine like terms
$3x = 30$	Subtraction Property of equality
$x = 10$	Division Property of equality

Did you have a great time in the west-east upside down?
I hope to see you next time.

Conclusion:

  After completing this benchmark our group learned ways to implement geometry into the real world. Overall this experience was great for all of us. We all did a great job at keeping up with the checkpoints and collaborating together. Our group truly had so much fun in the constructing of our map and are very pleased with the outcome of both the map as well as the visitor's guide. We learned more about how to apply things we learned in the classroom like, the pythagorean theorem, triangle sum and exterior angle sum theorems to real world situations. This project was really interesting and truly allowed us to see geometry in the real world, or in this case Hawkins, Indiana!