

Persuasive Pitch for Building Cell Towers Near Schools

Did you know that thousands of people can use a single cell tower everyday? We believe that there should be a cell tower located at Sycamore Junior High School. Some evidence to back our statement up are that Sycamore could get hundreds of thousands of dollars if they place down a cell tower, the closer you are to a cell tower, the better signal there will be, and that there isn't a cell tower currently close enough to give us a good signal. You can counterargue that the radiowaves that the cell tower emits can cause harm to us and possibly cause cancer. The weakness to that argument is that there is no scientific evidence to back up that statement.

Cell phone companies are willing to pay a lot of money to place cell towers. Sycamore can use this money to offer different programs or buy new school materials. According to ocregister.com, "APWireless could take over the leases for 13 cell towers for 15 years. In return, the district received \$3.2 million, he said, which will be used to buy iPads." Ocregister also states that a school in California, Esperanza High School, has cell tower on a light pole between it's football and baseball fields and that they use the money to pay for books, salaries and employee benefits.

A cell tower can only reach a certain distance for a good signal. According to a packet that our math teacher, Mrs. Padilla, gave us, the four nearest cell towers don't cover Sycamore with any good signal. This means that cell tower at Sycamore is the perfect idea. The advantages would be better signal around our area.

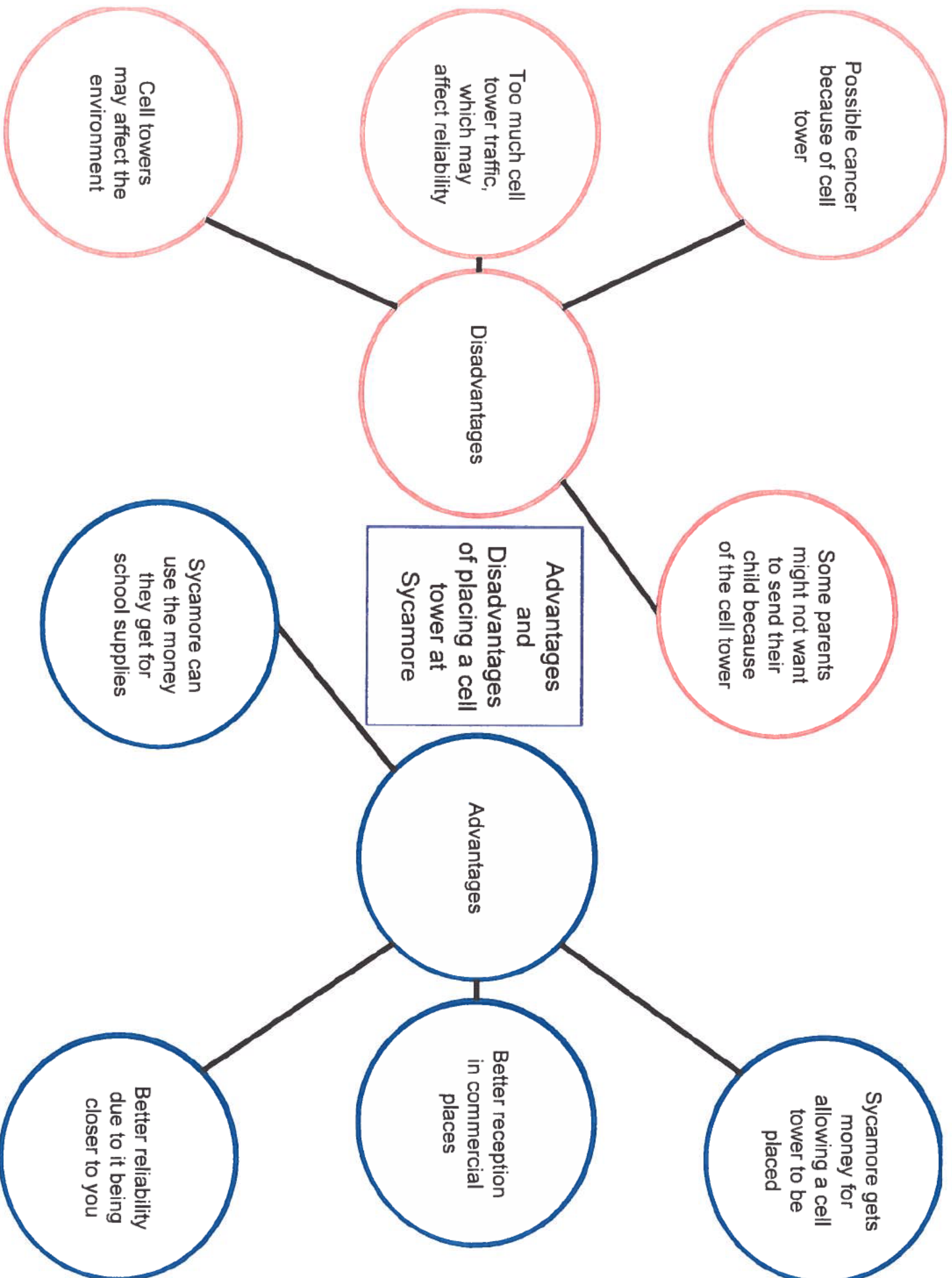
Our math packet also states that there aren't any cell towers that cover us with a good signal. This is why placing a cell tower at Sycamore is a great idea. Not only will it benefit us by giving us better signal, but it will also benefit our community because they

will get a good signal too. Now, there will be a big signal area so that everyone can get good reception.

A cell tower at Sycamore JHS is a great idea. Not only would they benefit from it, but the area around it would too. Sycamore would obtain much more funds that they can use to pay staff or scholastic materials. There are absolutely no downsides to this idea even though someone might say that cell towers risks health or can cause cancer. There is no downside because there is no scientific evidence to back up the statement that cell towers are health risks. A cell tower is the perfect way for Sycamore to get more money and to help the community around it.

How do cell phones work?

- Cell phones can send and receive calls without wire connections by using electromagnetic radio waves
- Electromagnetic energy travels invisibly through space at the speed of light (186,000 miles per second)
- Electromagnetic energy is all around us
- The cell phone tower receives and sends out the calls and messages
- The base station has to pick up faint signals from many cell phones and route them to their destination
- A cell looks like a giant invisible hexagon
- Your cellular network always knows where you are when your phone is on
- A cell phone cannot send signals very far
- The cell tower is surrounded by an area called a cell
 - Radio waves come in different frequencies
 - The cell tower tells apart radio waves like colors
- Communication by using 1s and 0s is called binary code
- Radio waves are invisible and can pass through you



Persuasive Pitch: For or Against Building Cell Towers Near Schools

Teacher Name: Mrs. Padilla

Student Name: _____

CATEGORY	4 - Above Standards	3 - Meets Standards	2 - Approaching Standards	1 - Below Standards	Score
Attention Grabber	The introductory paragraph has a strong hook or attention grabber that is appropriate for the audience. This could be a strong statement, a relevant quotation, statistic, or question addressed to the reader.	The introductory paragraph has a hook or attention grabber, but it is weak, rambling or inappropriate for the audience.	The author has an interesting introductory paragraph but the connection to the topic is not clear.	The introductory paragraph is not interesting AND is not relevant to the topic.	
Position Statement	The position statement provides a clear, strong statement of the author's position on the topic.	The position statement provides a clear statement of the author's position on the topic.	A position statement is present, but does not make the author's position clear.	There is no position statement.	
Support for Position	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement. The writer anticipates the reader's concerns, biases or arguments and has provided at least 1 counter-argument.	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement.	Includes 2 pieces of evidence (facts, statistics, real-life experiences) that support the position statement.	Includes 1 or fewer pieces of evidence (facts, statistics, examples, real-life experiences).	

Evidence and Examples

All of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.

Most of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.

Evidence and examples are NOT relevant AND/OR are not explained.

Sequencing

Arguments and support are provided in a logical order that makes it easy and interesting to follow the author's train of thought.

Arguments and support are provided in a fairly logical order that makes it reasonably easy to follow the author's train of thought.

A few of the support details or arguments are not in an expected or logical order, distracting the reader and making the essay seem a little confusing.

Many of the support details or arguments are not in an expected or logical order, distracting the reader and making the essay seem very confusing.

Closing paragraph

The conclusion is strong and leaves the reader solidly understanding the writer's position. Effective restatement of the position statement begins the closing paragraph.

The conclusion is recognizable. The author's position is restated within the first two sentences of the closing paragraph.

The author's position is restated within the closing paragraph, but not near the beginning.

There is no conclusion - the paper just ends.

Sources

All sources used for quotes, statistics and facts are credible and cited correctly.

All sources used for quotes, statistics and facts are credible and most are cited correctly.

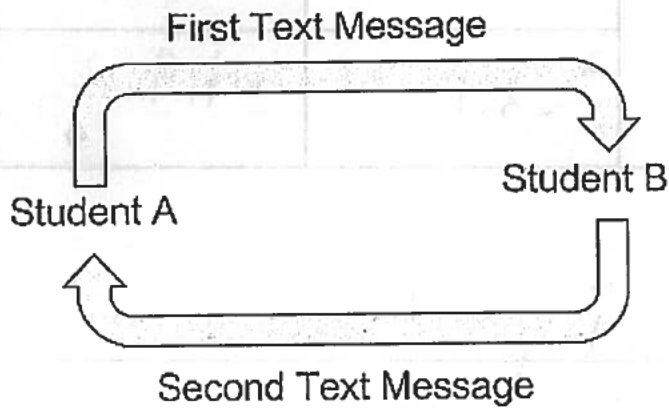
Most sources used for quotes, statistics and facts are credible and cited correctly.

Many sources are suspect (not credible) AND/OR are not cited correctly.

Name: Troyillo Date: _____

Text me!

Activity: Your partner and you are going to text each other. You are going to measure how long it takes to receive a text message. You will record the time it takes to send a message from Student A to Student B, then from Student B a message sent back to Student A (see diagram). You need someone to be a timekeeper, starting from when the first message is sent from Student A and ending when the second message is received by Student A.



Same Carriers

Student A	Student B	Time (seconds) close distance	Time (seconds) far distance
Bryan P.	Olivia		
Cell phone Model: <u>LG</u>	Cell phone Model: <u>I-Phone 5c</u>	1. ≈ 15.5	≈ 8.8
Phone company: <u>T-Mobile</u>	Phone company: <u>T-Mobile</u>	2. ≈ 14.5	≈ 8.8
		3. ≈ 7.5	≈ 8.9

Mixed Carriers

Student A <i>Vanessa</i>	Student B <i>Kathy</i>	Time (seconds) close distance	Time (seconds) far distance
Cell phone Model: <u>iPhone 6s</u>	Cell phone Model: <u>iPhone 6</u>	1. ≈ 3.4	≈ 2.4
Phone company: <u>Sprint</u>	Phone company: <u>ATT</u>	2. ≈ 2.9	≈ 2.3
		3. ≈ 3.1	≈ 1.9

Question you have about cell phones:

1. Why do they call it "cell" phone?
2. Will the phone model make more difference than the carrier?
3. How does my cell phone communicate with a cell tower?
4. Does the kind of SMS app effect the speed of the message?

$$a^2 + b^2 = c^2$$

Hom. 2

Math Measurements Hypotenuse

Microscope
↑
 $15.5^2 + 29.5^2 = c^2$

Alex
 $240.25 + 870.25 = c^2$

✓

$$\sqrt{1110.5} = c$$

$$33.324165 = c$$

$$\boxed{33.3 \approx c}$$

TV:
↑
 $21^2 + 36.5^2 = c^2$

Franco
 $441 + 1332.25 = c^2$

✓

$$\sqrt{1773.25} = c$$

$$42.104975 = c$$

$$\boxed{42.1 \approx c}$$

Computer:
↑
 $13.25^2 + 22.5^2 = c^2$

Michael
 $175.5625 + 506.25 = c^2$

✓

$$\sqrt{681.8125} = c$$

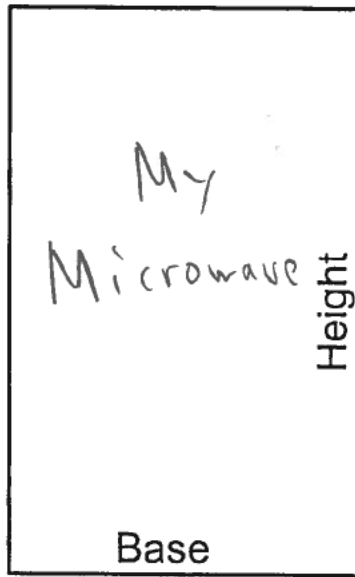
$$26.111539 = c$$

$$\boxed{26.1 \approx c}$$

TASK 2 Worksheet

Home Activity 1:

Measure the base and height of a rectangular object in your home.
Then using Pythagorean theorem calculate the screen size.



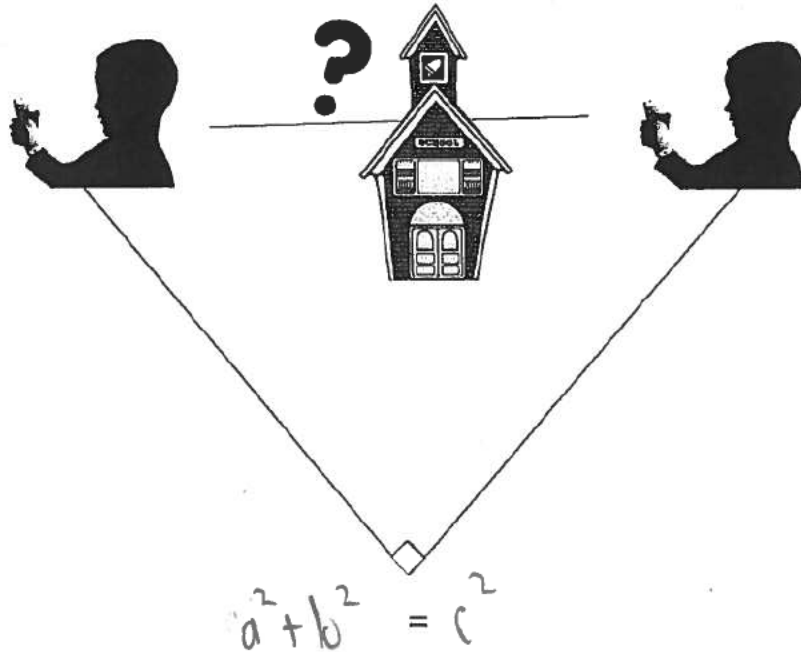
$$a^2 + b^2 = c^2$$
$$15.5^2 + 29.5^2 = c^2$$
$$240.25 + 870.25 = c^2$$
$$\sqrt{1110.5} = c$$
$$33.324165 = c$$
$$\boxed{33.3 \approx c}$$

base = 29.5

height = 15.5

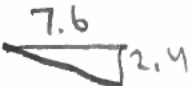



Name: Trujillo Period: 2 Date: _____

Directions: Use Map #1 to determine the distance between cell phone towers in Anaheim using the Pythagorean Theorem.



<p>1. AB= <u>7.7</u> units</p> <p>$4.5^2 + 6.3^2 = c^2$ $20.25 + 39.69 = c^2$ $\sqrt{59.94} = c$ $7.7420427 = c$ $7.7 \approx c$</p>	<p>2. BC= <u>7.5</u> units</p> <p>$2.8^2 + 7^2 = c^2$ $7.84 + 49 = c^2$ $\sqrt{56.84} = c$ $7.5392807 = c$ $7.5 \approx c$</p>
<p>3. CD= <u>3.6</u> units</p> <p>$2.7^2 + 2.4^2 = c^2$ $7.29 + 5.76 = c^2$ $\sqrt{13.05} = c$ $3.6124763 = c$ $3.6 \approx c$</p>	<p>4. BD= <u>4.3</u> units</p> <p>$4.2^2 + 0.2^2 = c^2$ $17.64 + .04 = c^2$ $\sqrt{17.68} = c$ $4.2047542 = c$ $4.3 \approx c$</p>
<p>5. AC= <u>7.2</u> units</p> <p>$7.1^2 + 1.7^2 = c^2$ $50.41 + 2.89 = c^2$ $\sqrt{53.3} = c$ $7.304235 = c$ $7.2 \approx c$</p>	<p>6. AD= <u>5.1</u> units</p> <p>$4.7^2 + 2^2 = c^2$ $22.09 + 4 = c^2$ $\sqrt{26.09} = c$ $5.1074371 = c$ $5.1 \approx c$</p>

Directions: Use Map #2 and the Pythagorean theorem to determine the 2 closest cell towers to your school.

<p>1. AS = <u>7.9</u> units</p>  <p> $7.6^2 + 2.4^2 = c^2$ $57.8 + 5.8 = c^2$ $63.6 = c^2$ $7.974608 = c$ </p>	<p>2. BS = <u>8.9</u> units</p>  <p> $7.7^2 + 4.6^2 = c^2$ $59.3 + 21.2 = c^2$ $80.5 = c^2$ $8.9721742 = c$ $8.9 \approx c$ </p>
<p>3. CS = <u>5.6</u> units</p>  <p> $5.4^2 + 2.2^2 = c^2$ $29.2 + 4.8 = c^2$ $34.0 = c^2$ $5.83095 = c$ $5.6 \approx c$ </p>	<p>4. DS = <u>7.9</u> units</p>  <p> $4.5^2 + 6.5^2 = c^2$ $20.25 + 42.25 = c^2$ $62.5 = c^2$ $7.920 = c$ </p>

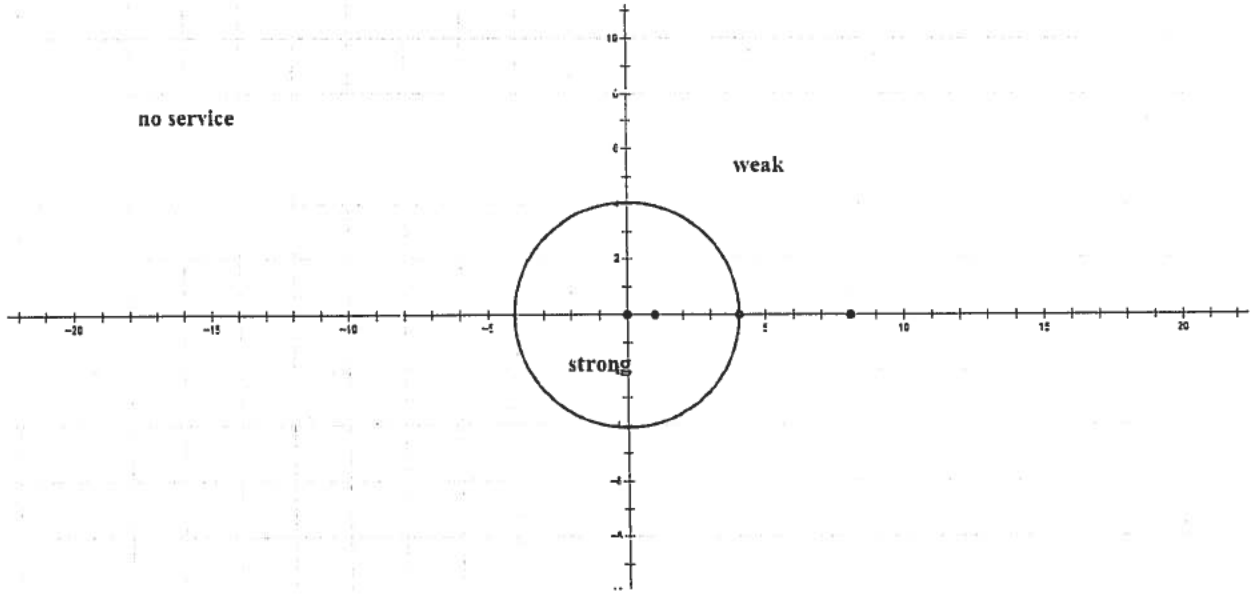
The closest cell tower to my school is tower C & A.

For this purpose assume that:

A **strong** cell signal has a radius 2 miles around the cell tower.

A **weak** cell signal has a radius between 2 and 4 miles around the cell tower.

There is **no** cell signal after a radius of 4 miles around the cell tower.



Trace the area of a strong signal around cell tower A and shade it green
 Trace the area of the weak signal around cell tower A and shade it yellow
 Outline the area of no signal around cell tower A with red color.

Trace the area of a strong signal around cell tower B and shade it green
 Trace the area of the weak signal around cell tower B and shade it yellow
 Outline the area of no signal around cell tower B with red color.

Create the circular reception area of a cellphone tower and use transformations to determine where you would place a third tower.

1. What areas of Anaheim already have great signal? What streets?

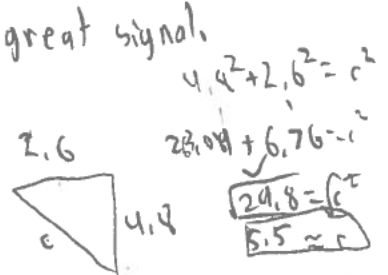
North Ball St, and North East St, already have great signal.

Decide where to place a third tower.

2. What are the coordinates of the third tower? *(1.8, 0.8)*

3. What is the distance from this tower C, to tower A and B.

AC = 5.5
 BC = 3.6



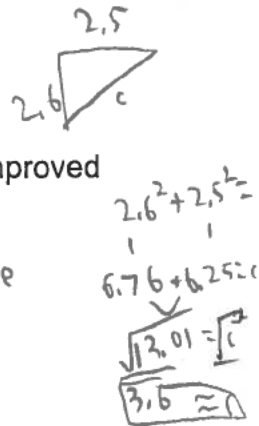
4. What are the reasons you placed this tower in this location?

We decided to place the tower at Sycamore

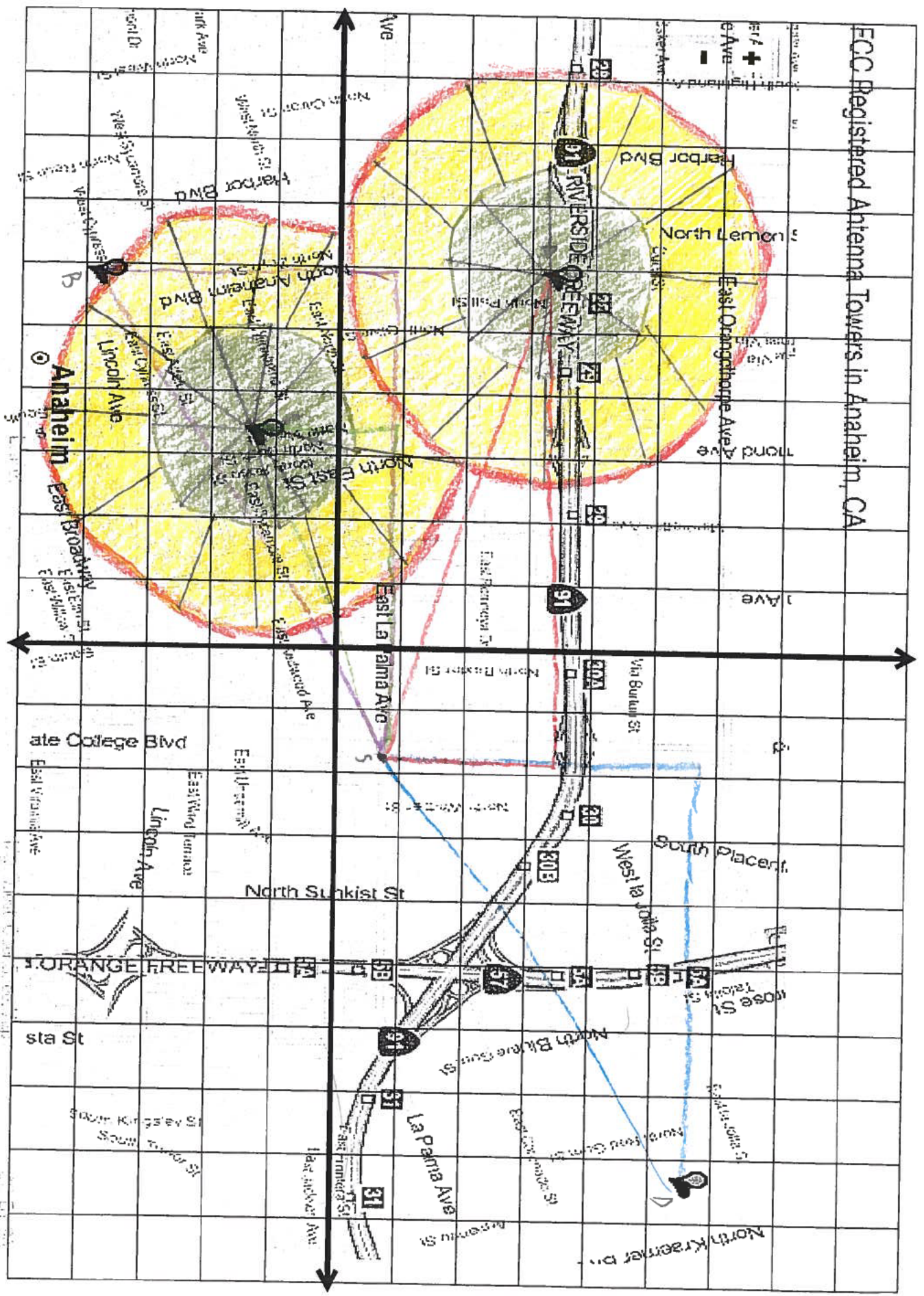
Because that way, there would be better signal in the area and

5. By placing this tower at this location what other parts of Anaheim now have improved cell service? *Sycamore would get money for doing it.*

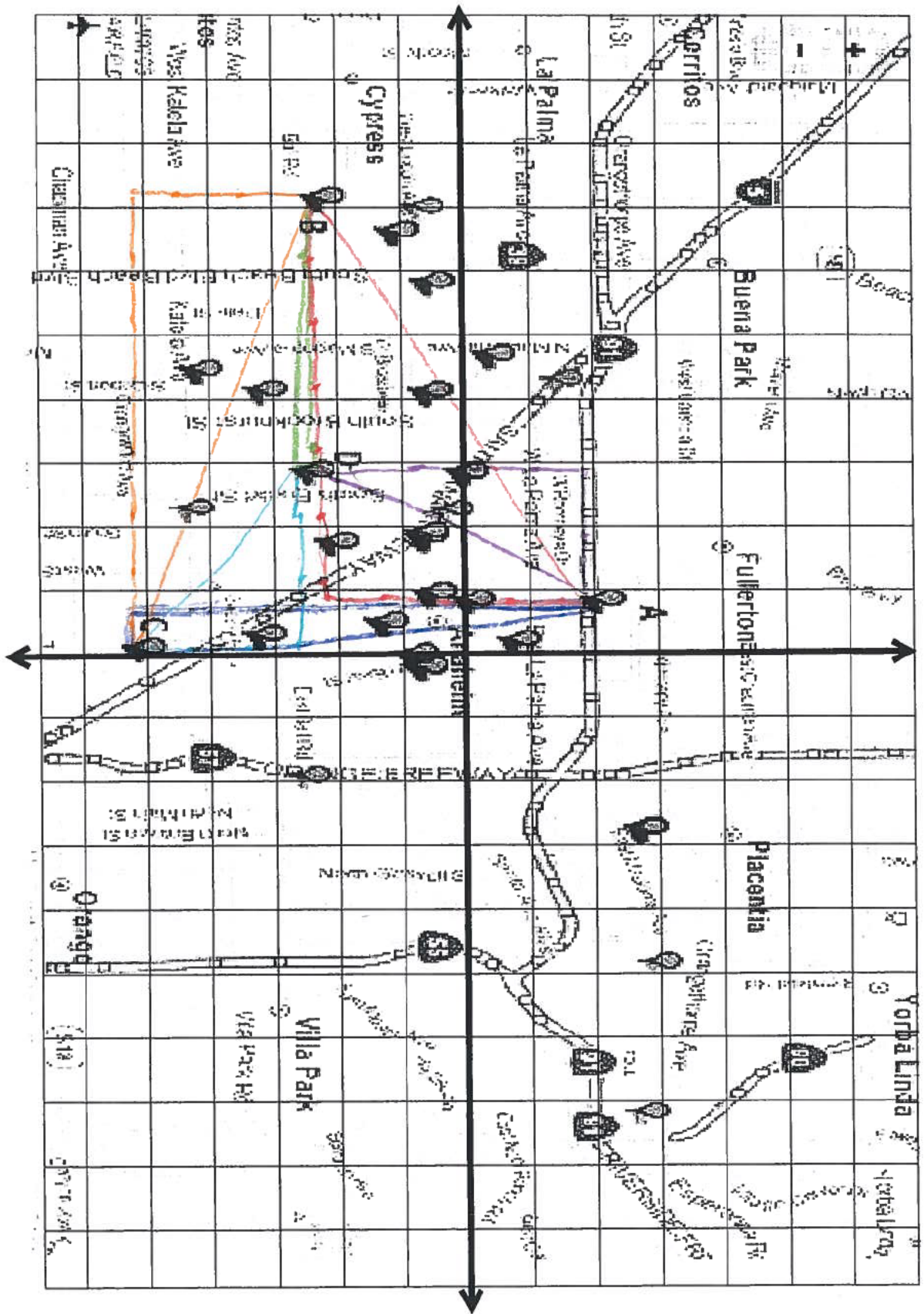
East La Palma Avenue would have improved cell service if we decide to place a cell tower at Sycamore.



ECC Registered Antenna Towers in Anaheim, CA



North 12
Tracy

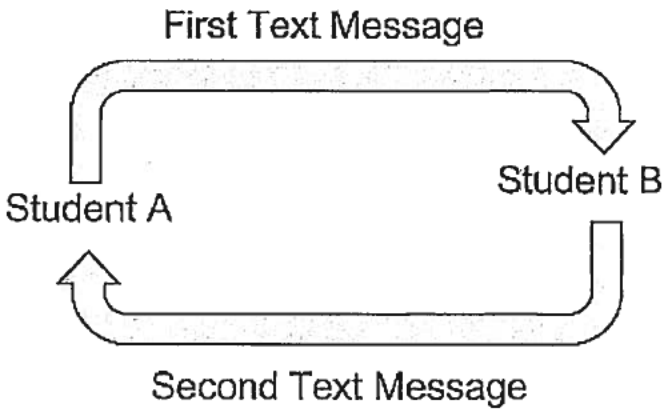


Map 2

Name: Rojas Date: 12/12

Text me!

Activity: Your partner and you are going to text each other. You are going to measure how long it takes to receive a text message. You will record the time it takes to send a message from Student A to Student B, then from Student B a message sent back to Student A (see diagram). You need someone to be a timekeeper, starting from when the first message is sent from Student A and ending when the second message is received by Student A.



Same Carriers

Student A	Student B	Time (seconds) close distance	Time (seconds) far distance
Bryan P.	Olivia		
Cell phone Model: <u>LG</u>	Cell phone Model: <u>T-Phone 5c</u>	1. <u>~15.5</u>	<u>~8.8</u>
Phone company: <u>T-mobile</u>	Phone company: <u>T-Mobile</u>	2. <u>~14.5</u>	<u>~8.8</u>
		3. <u>~7.5</u>	<u>~9</u>

Mixed Carriers

Student A Vanessa	Student B Infrared	Time (seconds) close distance	Time (seconds) far distance
Cell phone Model: I phone 6s	Cell phone Model: I phone 6s	1. ≈ 3.4	≈ 2.4
Phone company: Sprint	Phone company: AT&T	2. ≈ 2.9	—
		3. ≈ 3.1	—

Question you have about cell phones:

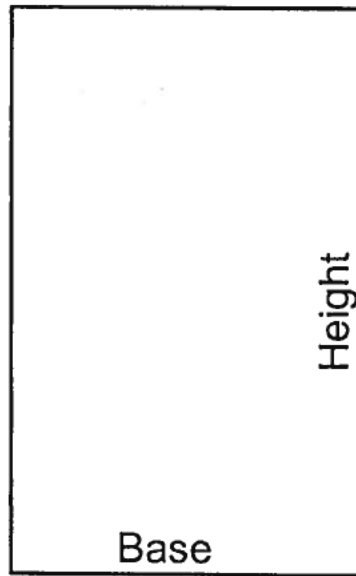
1. Why do they call it cellular
2. Will the phone model make more difference than the call.
3. Why are they called cell towers
4. How does the phone communicate with cell towers

Rojas
P.2

TASK 2 Worksheet
Home Activity 1:

Measure the base and height of a rectangular object in your home.
Then using Pythagorean theorem calculate the screen size.

My Computer



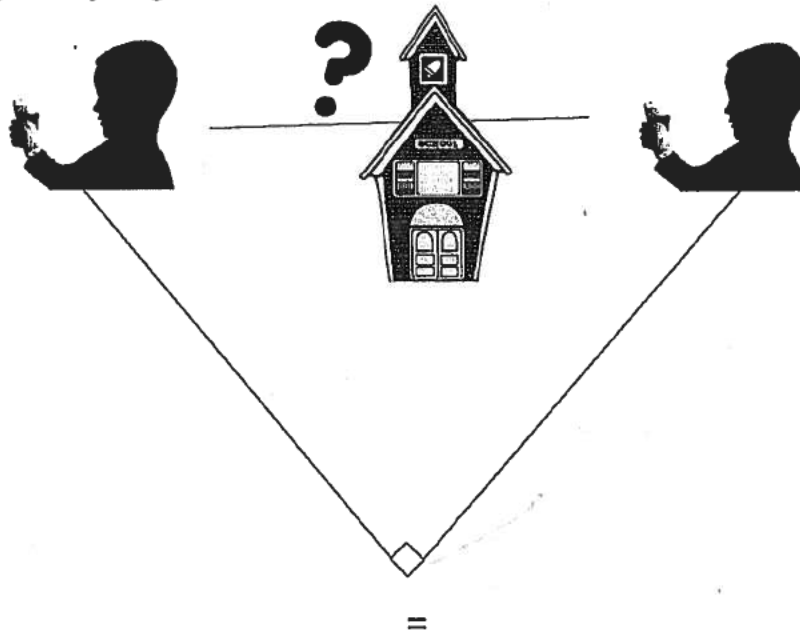
$$a^2 + b^2 = c^2$$
$$13.25^2 + 22.5^2 = c^2$$
$$175.5625 + 506.25 = c^2$$
$$\sqrt{681.8125} = \sqrt{c}$$
$$\boxed{26.111539} = c$$

base = 22.5

height = 13.25

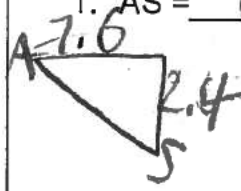
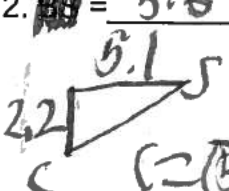
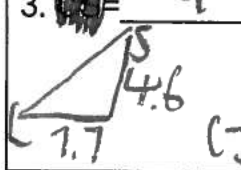
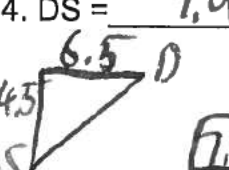
Name: Rojas Period: 2 Date: 5-16-16

Directions: Use Map #1 to determine the distance between cell phone towers in Anaheim using the Pythagorean Theorem.



<p>1. AB = <u>7.7</u> units</p> <p>$4.5^2 + 0.5^2 = c^2$ $20.25 + 0.25 = c^2$ $\sqrt{20.5} = c$ <u>7.7</u> = c</p>	<p>2. BC = <u>7.5</u> units</p> <p>$2.8^2 + 7^2 = c^2$ $7.84 + 49 = c^2$ $\sqrt{56.84} = c$ <u>7.5</u> = c</p>
<p>3. CD = <u>3.6</u> units</p> <p>$2.7^2 + 2.4^2 = c^2$ $7.29 + 5.76 = c^2$ $\sqrt{13.05} = c$ <u>3.6</u> = c</p>	<p>4. BD = <u>4.3</u> units</p> <p>$4.2^2 + 0.2^2 = c^2$ $17.64 + 0.04 = c^2$ $\sqrt{17.68} = c$ <u>4.3</u> = c</p>
<p>5. AC = <u>7.2</u> units</p> <p>$7.1^2 + 0.7^2 = c^2$ $50.41 + 0.49 = c^2$ $\sqrt{50.9} = c$ <u>7.2</u> = c</p>	<p>6. AD = <u>5.1</u> units</p> <p>$4.7^2 + 2^2 = c^2$ $22.1 + 4 = c^2$ $\sqrt{26.1} = c$ <u>5.1</u> = c</p>

Directions: Use Map #2 and the Pythagorean theorem to determine the 2 closest cell towers to your school.

<p>1. AS = <u>7.8</u> units</p>  <p>$7.6^2 + 2.4^2 = c^2$ $57.8 + 5.8 = c^2$ $\sqrt{63.6} = c$</p>	<p>2. AS = <u>5.6</u> units</p>  <p>$5.1^2 + 2.2^2 = c^2$ $26.01 + 4.8 = c^2$ $\sqrt{30.81} = c$</p>
<p>3. AS = <u>9</u> units</p>  <p>$7.7^2 + 4.6^2 = c^2$ $59.3 + 21.2 = c^2$ $\sqrt{80.5} = c$</p>	<p>4. DS = <u>7.9</u> units</p>  <p>$6.5^2 + 4.5^2 = c^2$ $42.25 + 20.25 = c^2$ $\sqrt{62.5} = c$</p>

BS

CS

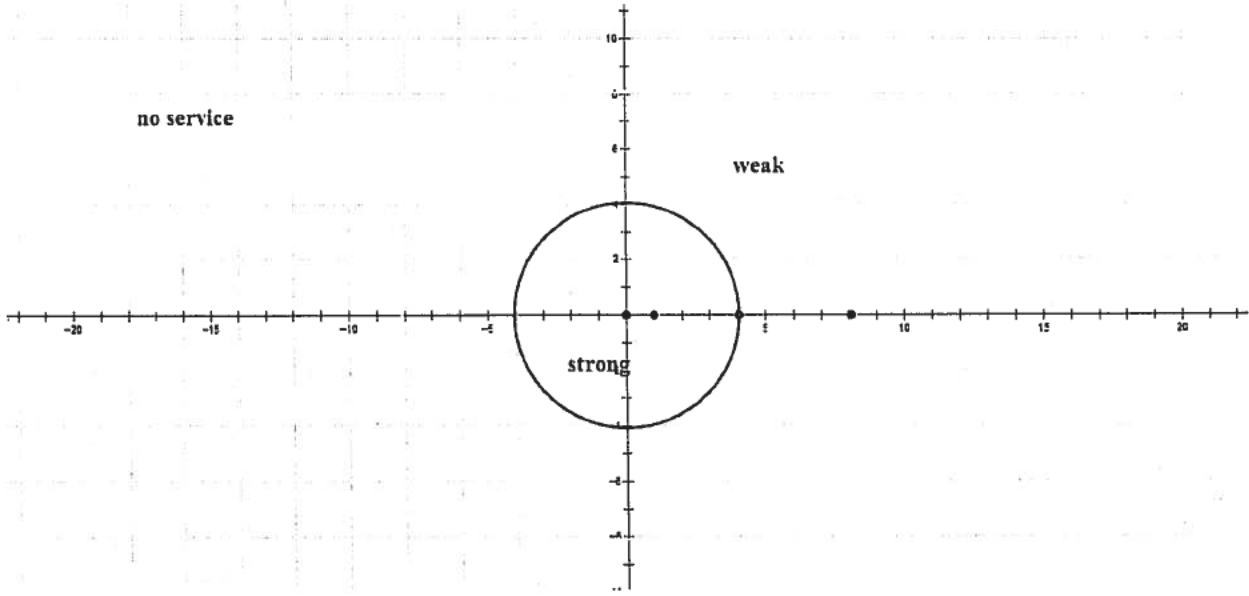
The closest cell tower to my school is tower C/A.

For this purpose assume that:

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Trace the area of a strong signal around cell tower A and shade it green
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 Outline the area of no signal around cell tower A with red color.

Trace the area of a strong signal around cell tower B and shade it green
 Trace the area of the weak signal around cell tower B and shade it yellow
 Outline the area of no signal around cell tower B with red color.

Create the circular reception area of a cellphone tower and use transformations to determine where you would place a third tower.

1. What areas of Anaheim already have great signal? What streets?

East Sycamore st. and East St. etc.

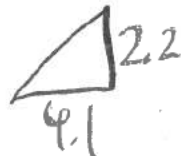
Decide where to place a third tower.

2. What are the coordinates of the third tower?

(1.8, 0.8)

3. What is the distance from this tower C, to tower A and B.

AC = 7.2
 BC = 4.7



4. What are the reasons you placed this tower in this location?

to improve signal in Sycamore and the central part

5. By placing this tower at this location what other parts of Anaheim now have improved cell service?

Sycamore, La Palma, and State College

$$6.8^2 + 2.4^2 = c^2$$

$$46.24 + 5.76 = c^2$$

$$\sqrt{52} = c$$

$$\boxed{7.2 = c}$$

$$4.1^2 + 2.2^2 = c^2$$

$$16.81 + 4.84 = c^2$$

$$\sqrt{21.65} = c$$

$$\boxed{4.7 = c}$$

Math measurement

Michael Computer: $13.25 \cdot 22.5$

$$\begin{array}{c} \nearrow a^2 + b^2 = c^2 \leftarrow \text{hypotenuse} \\ \text{side} \quad \text{base} \end{array}$$

$$13.25^2 + 22.5^2 = c^2$$

$$175.5625 + 506.25 = c^2$$

$$\sqrt{681.8125} = \sqrt{c^2}$$

$$26.111539 = c$$

Alex Microwave: $15.5^2 + 29.5^2 = c^2$

$$\begin{array}{c} | \quad | \\ 240.25 + 870.25 = c^2 \\ \checkmark \end{array}$$

$$\sqrt{1110.5} = \sqrt{c^2}$$

$$33.324185 = c$$

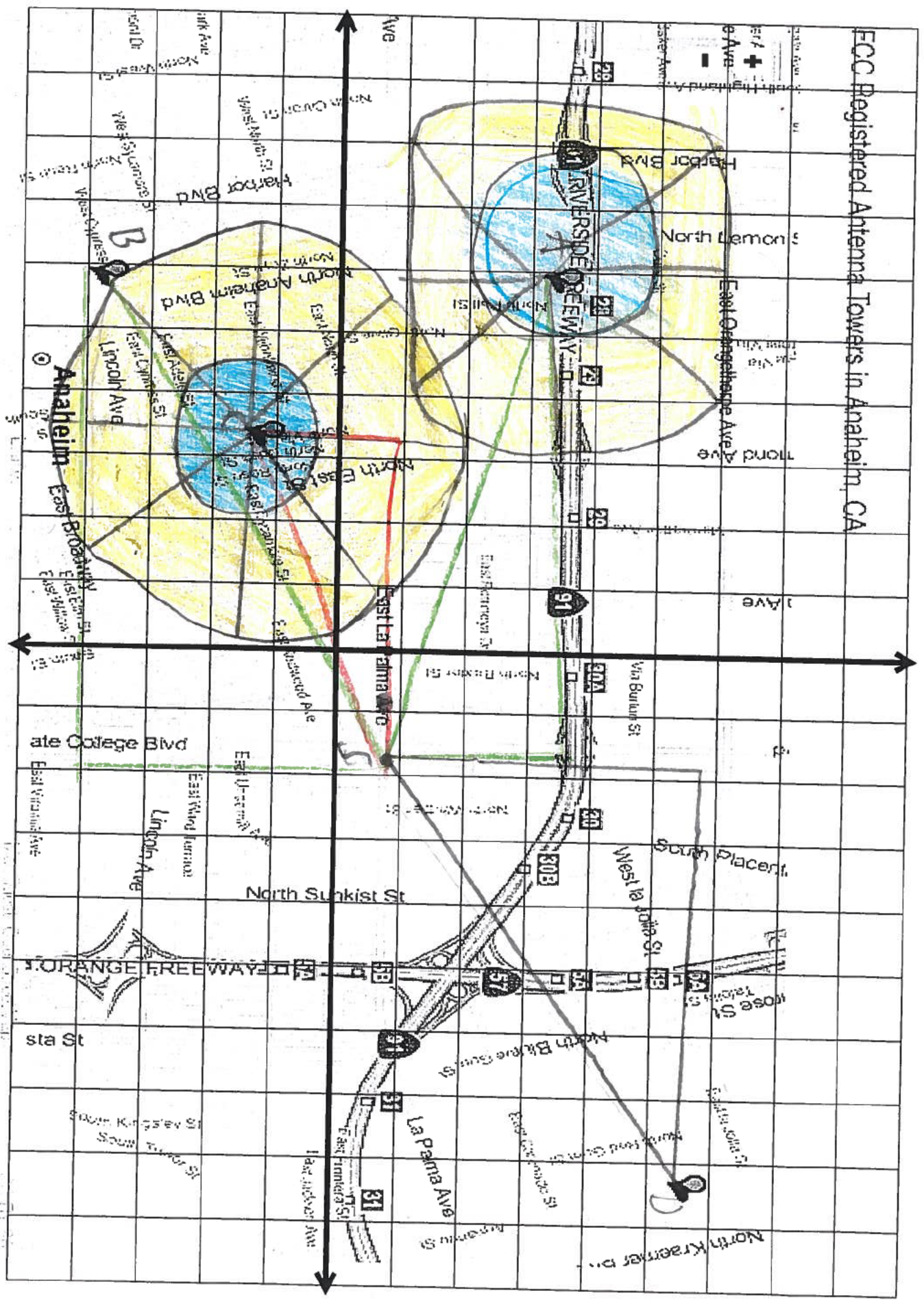
Franco T.V: $21^2 + 36.5^2 = c^2$

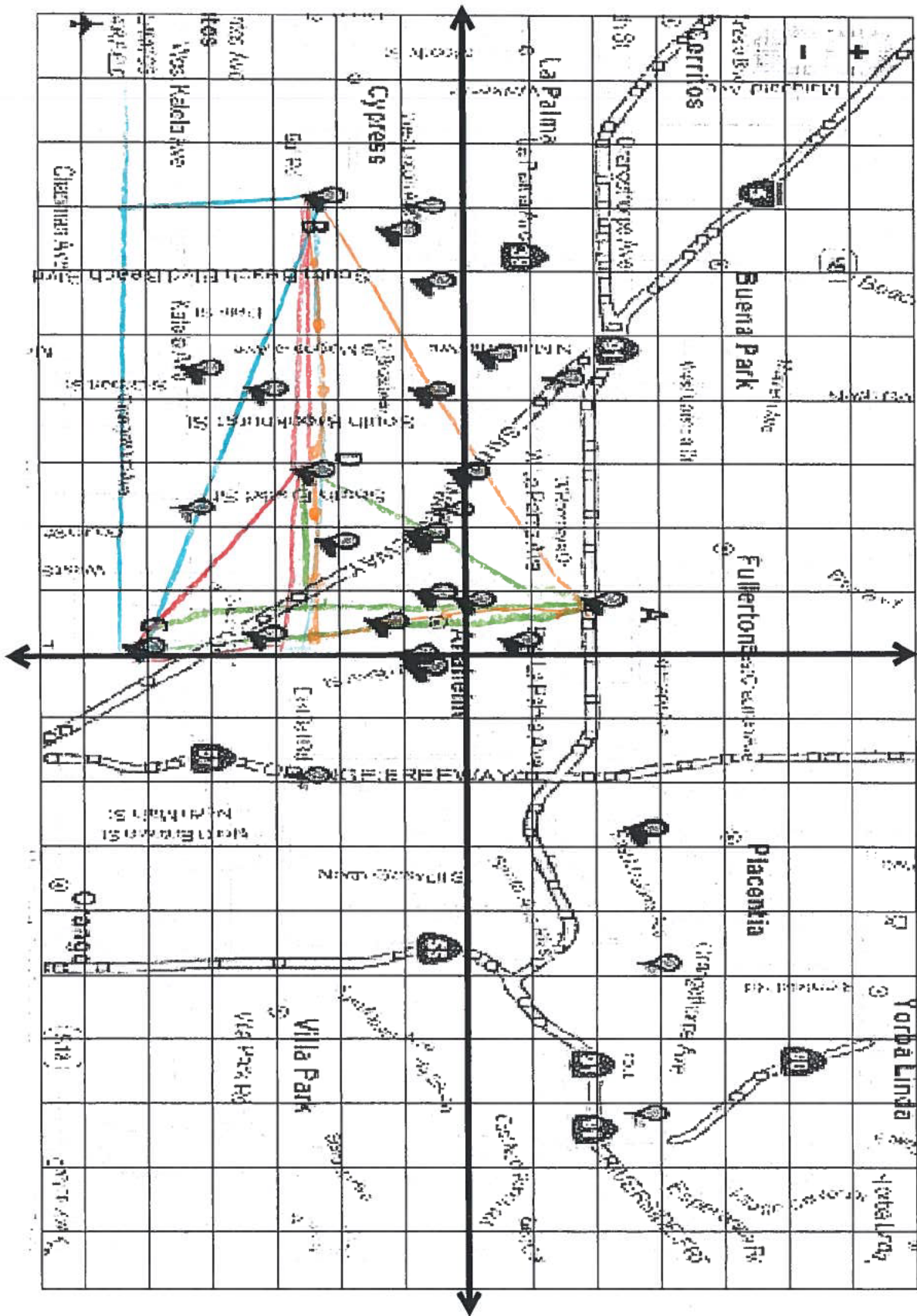
$$\begin{array}{c} | \quad | \\ 441 + 1332.25 = c^2 \\ \checkmark \end{array}$$

$$\sqrt{1773.25} = \sqrt{c^2}$$

$$42.109975 = c$$

ECC Registered Antenna Towers in Anaheim, CA

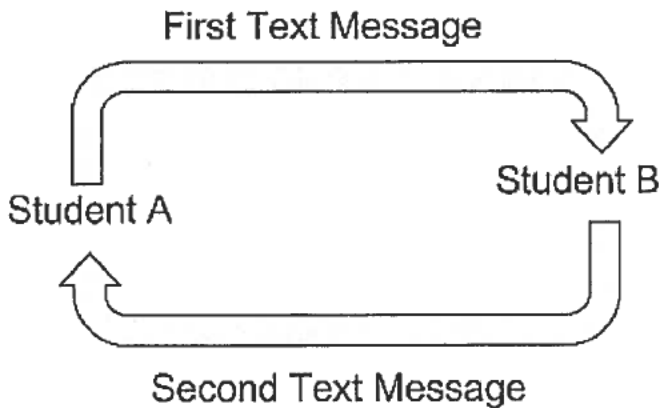




Name: Solano Date: 5/5/16

Text me!

Activity: Your partner and you are going to text each other. You are going to measure how long it takes to receive a text message. You will record the time it takes to send a message from Student A to Student B, then from Student B a message sent back to Student A (see diagram). You need someone to be a timekeeper, starting from when the first message is sent from Student A and ending when the second message is received by Student A.



Same Carriers

Student A	Student B	Time (seconds) close distance	Time (seconds) far distance
Bryan R.	Olivia		
Cell phone Model: <u>LG</u>	Cell phone Model: <u>iPhone 5c</u>	1. <u>≈ 15.5</u>	<u>≈ 8.8</u>
Phone company: <u>T-Mobile</u>	Phone company: <u>T-Mobile</u>	2. <u>≈ 14.5</u>	<u>≈ 8.8</u>
		3. <u>≈ 7.5</u>	<u>≈ 8.9</u>

Mixed Carriers

Student A Vannesa	Student B Kathy	Time (seconds) close distance	Time (seconds) far distance
Cell phone Model: <u>iPhone 6s</u>	Cell phone Model: <u>iPhone 6</u>	1. ≈ 3.4	≈ 2.4
Phone company: <u>Sprint</u>	Phone company: <u>AT&T</u>	2. ≈ 2.9	≈ 2.5
		3. ≈ 3.1	≈ 1.9

Question you have about cell phones:

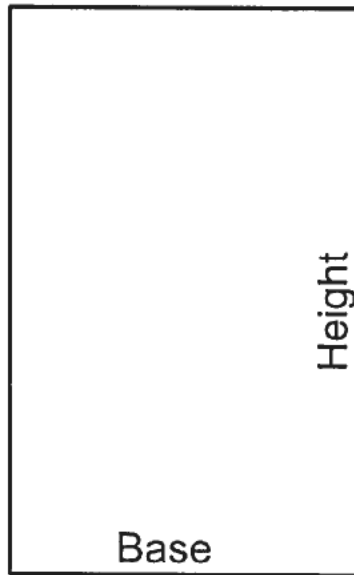
1. Why do they call it cell?
2. Will the phone model make more difference than the carrier?
3. Does the kind of SMS app affect the speed of the message?
4. _____

TASK 2 Worksheet

Home Activity 1:

Measure the base and height of a rectangular object in your home.
Then using Pythagorean theorem calculate the screen size.

My Home's
TV

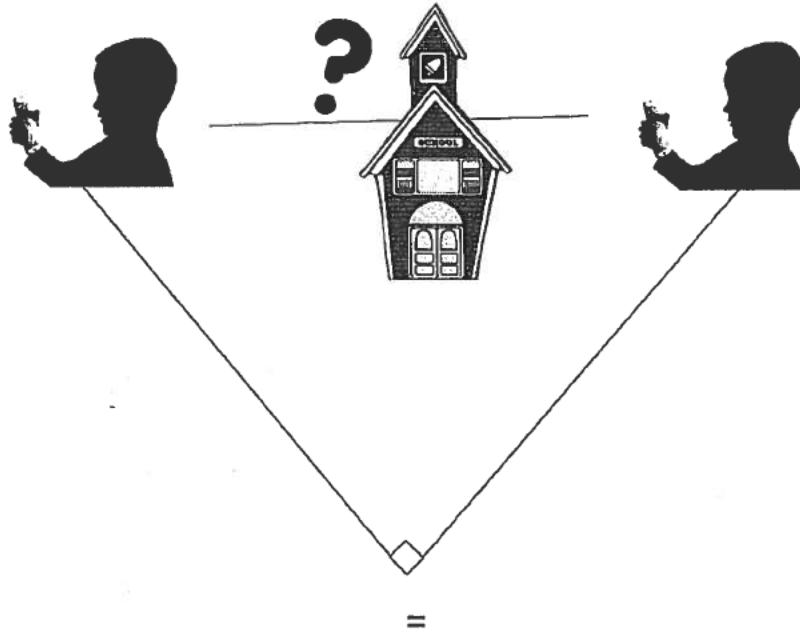


base = 36

height = 21

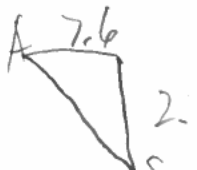
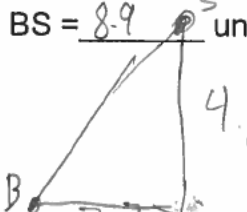
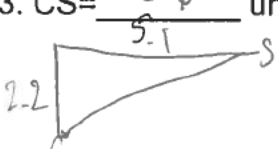
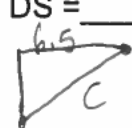
Name: Solano Period: 2 Date: _____

Directions: Use Map #1 to determine the distance between cell phone towers in Anaheim using the Pythagorean Theorem.



<p>1. AB = <u>7.7</u> units</p> $4.5^2 + 6.3^2 = c^2$ $20.25 + 39.69 = c^2$ $\sqrt{59.94} = \sqrt{c^2}$ $7.7 = c$	<p>2. BC = <u>7.54</u> units</p> $2.8^2 + 7^2 = c^2$ $7.84 + 49 = c^2$ $\sqrt{56.84} = \sqrt{c^2}$ $7.54 = c$
<p>3. CD = <u>3.6</u> units</p> $2.7^2 + 2.4^2 = c^2$ $7.3 + 5.8 = c^2$ $\sqrt{13.1} = \sqrt{c^2}$ $3.6 = c$	<p>4. BD = <u>4.2</u> units</p> $4.2^2 + 0.2^2 = c^2$ $17.6 + 0.04 = c^2$ $\sqrt{17.64} = \sqrt{c^2}$ $4.2 = c$
<p>5. AC = <u>7.1</u> units</p> $7.1^2 + 0.7^2 = c^2$ $50.41 + 0.49 = c^2$ $\sqrt{50.9} = \sqrt{c^2}$ $7.1 = c$	<p>6. AD = <u>5.1</u> units</p> $4.7^2 + 2^2 = c^2$ $22.09 + 4 = c^2$ $\sqrt{26.1} = \sqrt{c^2}$ $5.1 = c$

Directions: Use Map #2 and the Pythagorean theorem to determine the 2 closest cell towers to your school.

<p>1. AS = <u>7.9</u> units</p>  <p> $7.6^2 + 2.4^2 = c^2$ $57.8 + 5.8 = c^2$ $\sqrt{63.6} = \sqrt{c^2}$ $7.9 = c$ </p>	<p>2. BS = <u>8.9</u> units</p>  <p> $4.6^2 + 7.7^2 = c^2$ $21.16 + 59.29 = c^2$ $\sqrt{80.45} = \sqrt{c^2}$ $8.9 = c$ </p>
<p>3. CS = <u>5.6</u> units</p>  <p> $2.2^2 + 5.1^2 = c^2$ $4.84 + 26 = c^2$ $\sqrt{30.84} = \sqrt{c^2}$ $5.6 = c$ </p>	<p>4. DS = <u>7.9</u> units</p>  <p> $4.5^2 + 6.5^2 = c^2$ $20.25 + 42.25 = c^2$ $\sqrt{62.5} = \sqrt{c^2}$ $7.9 = c$ </p>

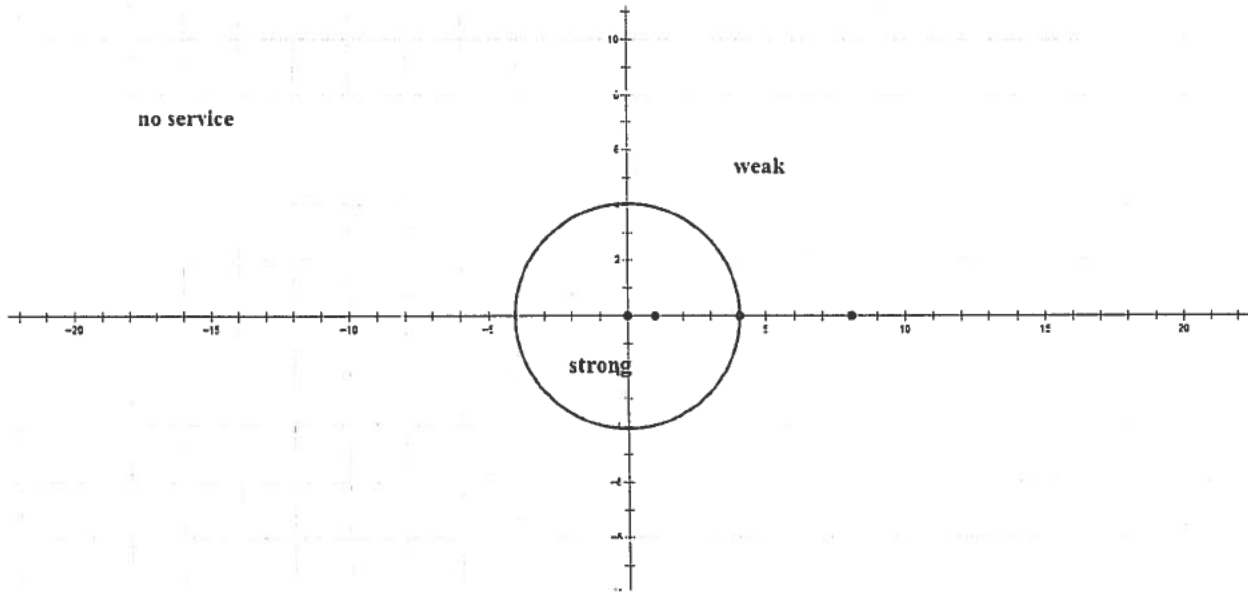
The closest cell tower to my school is tower C & A.

For this purpose assume that:

A strong cell signal has a radius 2 miles around the cell tower.

A weak cell signal has a radius between 2 and 4 miles around the cell tower.

There is no cell signal after a radius of 4 miles around the cell tower.



Trace the area of a strong signal around cell tower A and shade it green
 Trace the area of the weak signal around cell tower A and shade it yellow
 Outline the area of no signal around cell tower A with red color.

Trace the area of a strong signal around cell tower B and shade it green
 Trace the area of the weak signal around cell tower B and shade it yellow
 Outline the area of no signal around cell tower B with red color.
 Create the circular reception area of a cellphone tower and use transformations to determine where you would place a third tower.

1. What areas of Anaheim already have great signal? What streets?

North Ball st & East St have a great signal

Decide where to place a third tower.

2. What are the coordinates of the third tower? (1.8, 0.8)

3. What is the distance from this tower C, to tower A and B.

$AC \approx 5.5$

$BC \approx 3.6$

$4.8^2 + 2.6^2 = c^2$
 $23.04 + 6.76$
 $\sqrt{29.8} = \sqrt{c^2}$
 $5.5 = c$

4. What are the reasons you placed this tower in this location?

So we can have better signal

5. By placing this tower at this location what other parts of Anaheim now have improved cell service?

Sycamore, Mc Donalds, Subway & other buildings nearby

Math Measurements

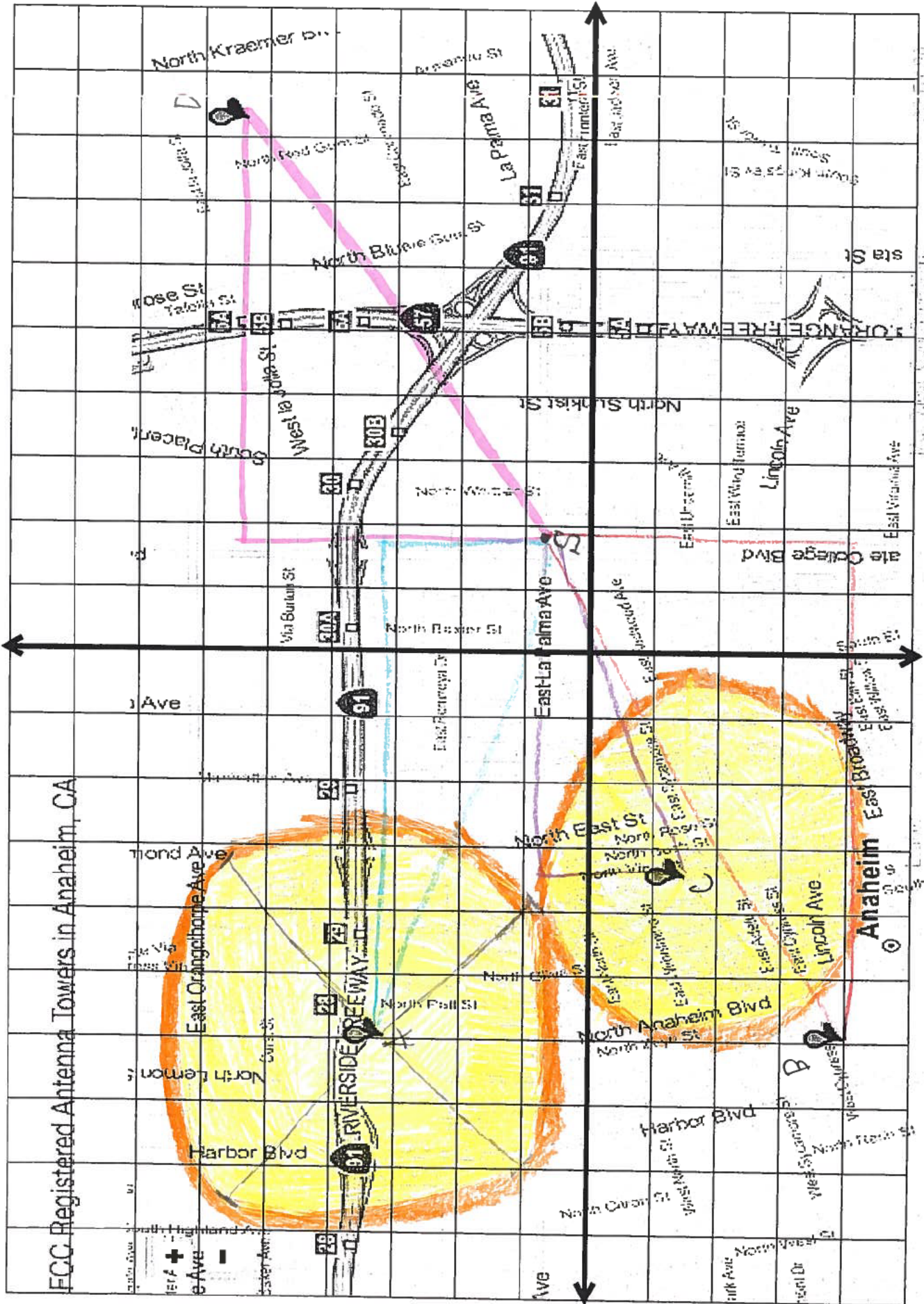
Length & Width

TV: 21 & 36 W

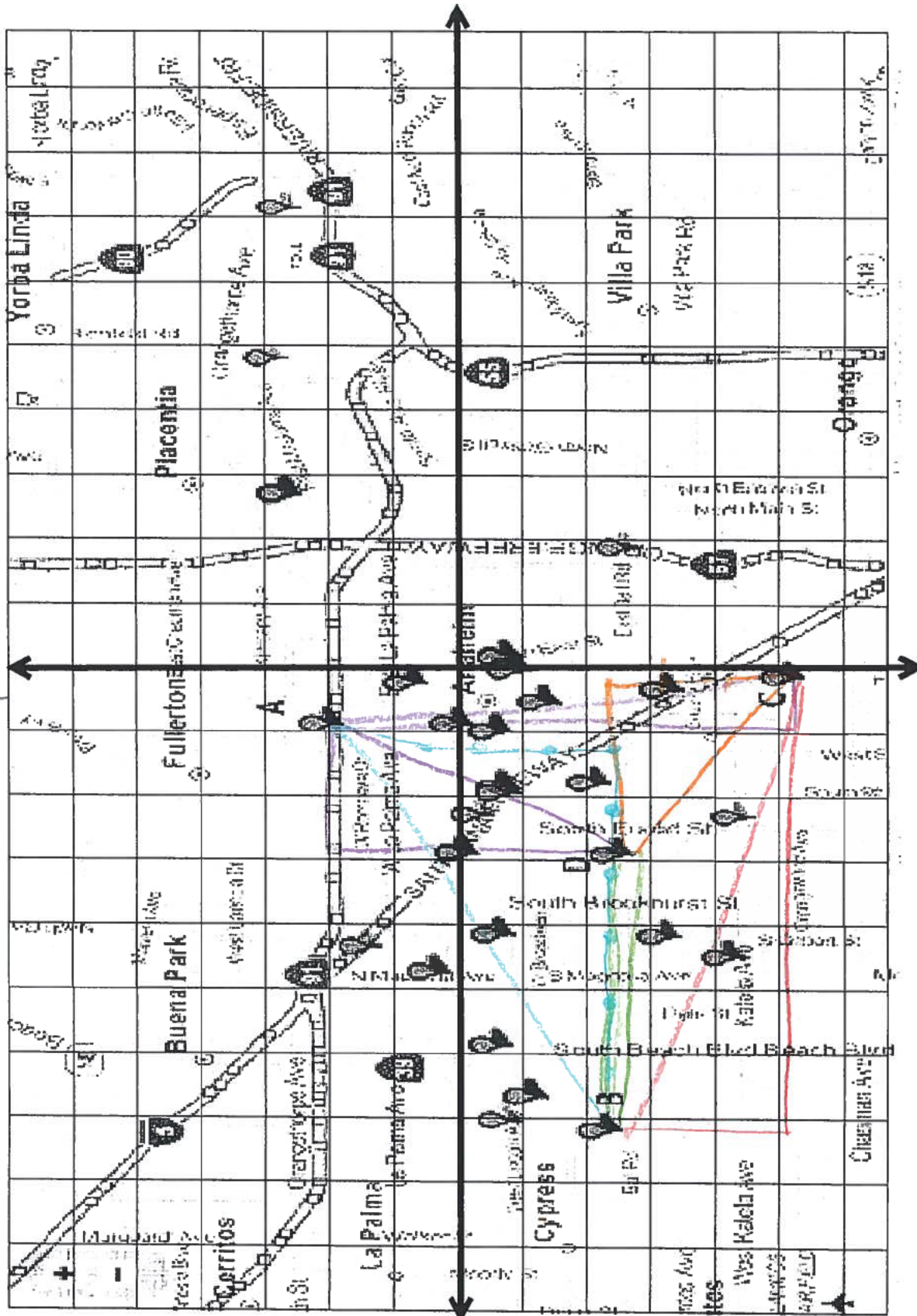
$$\begin{aligned}\text{Francis TV: } 21^2 + 36^2 &= c^2 \\ 441 + 1296 &= c^2 \\ \sqrt{1737} &= \sqrt{c^2} \\ 41.677 &= c \\ 42 &\approx c\end{aligned}$$

$$\begin{aligned}\text{Michael's Computer: } 13.25^2 + 25.5^2 &= c^2 \\ 175.5625 + 650.25 &= c^2 \\ \sqrt{825.8125} &= \sqrt{c^2} \\ 28.738 &= c \\ 29 &\approx c\end{aligned}$$

$$\begin{aligned}\text{Alex's Microwave: } 15^2 + 79.5^2 &= c^2 \\ 225 + 6320.25 &= c^2 \\ \sqrt{6545.25} &= \sqrt{c^2} \\ 80.905 &= c \\ 81 &\approx c\end{aligned}$$



Map 1



Name

Salinas

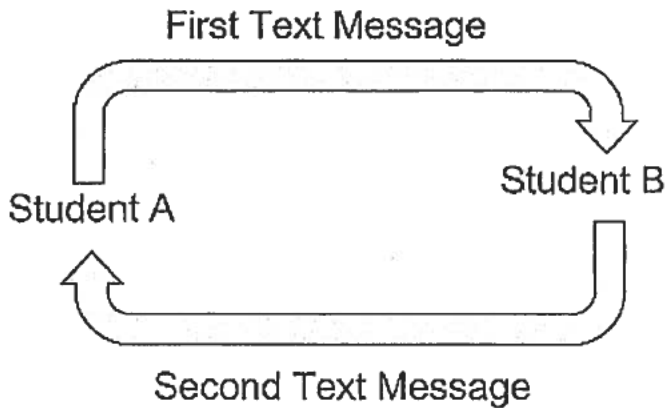
Date:

May 5, 2016

period: 2

Text me!

Activity: Your partner and you are going to text each other. You are going to measure how long it takes to receive a text message. You will record the time it takes to send a message from Student A to Student B, then from Student B a message sent back to Student A (see diagram). You need someone to be a timekeeper, starting from when the first message is sent from Student A and ending when the second message is received by Student A.



Same Carriers

Student A	Student B	Time (seconds) close distance	Time (seconds) far distance
<u>Bryan P</u>	<u>Olivia</u>		
Cell phone Model: <u>LG</u>	Cell phone Model: <u>iPhone 5C</u>	1. <u>≈ 15.5</u>	<u>≈ 8.8</u>
Phone company: <u>T-Mobile</u>	Phone company: <u>T-Mobile</u>	2. <u>≈ 14.5</u>	<u>≈ 8.8</u>
		3. <u>≈ 7.5</u>	<u>≈ 8.9</u>

Mixed Carriers

Student A Vanessa	Student B Kathy	Time (seconds) close distance	Time (seconds) far distance
Cell phone Model: <u>iPhone 6s</u>	Cell phone Model: <u>iPhone 6</u>	1. ≈ 3.4	≈ 2.4
Phone company: <u>Sprint</u>	Phone company: <u>AT&T</u>	2. ≈ 2.9	≈ 2.5
		3. ≈ 3.1	≈ 1.9

Question you have about cell phones:

1. Why do they call it cell tower or cellphone?
2. Will the phone model make more difference than ^{the} carrier?
3. How do phones communicate with the cell tower?
4. Does the SMS

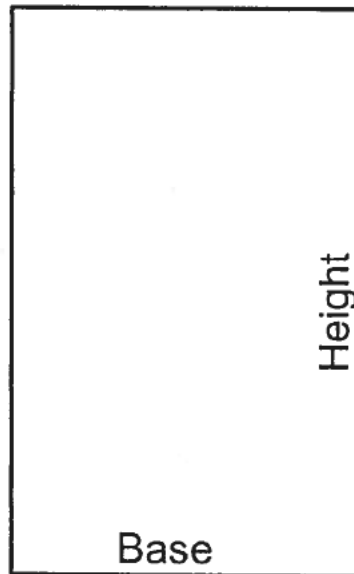
Salinas

Hora: 2
May 25, 2016

TASK 2 Worksheet
Home Activity 1:

Measure the base and height of a rectangular object in your home.
Then using Pythagorean theorem calculate the screen size.

My homes
Computer



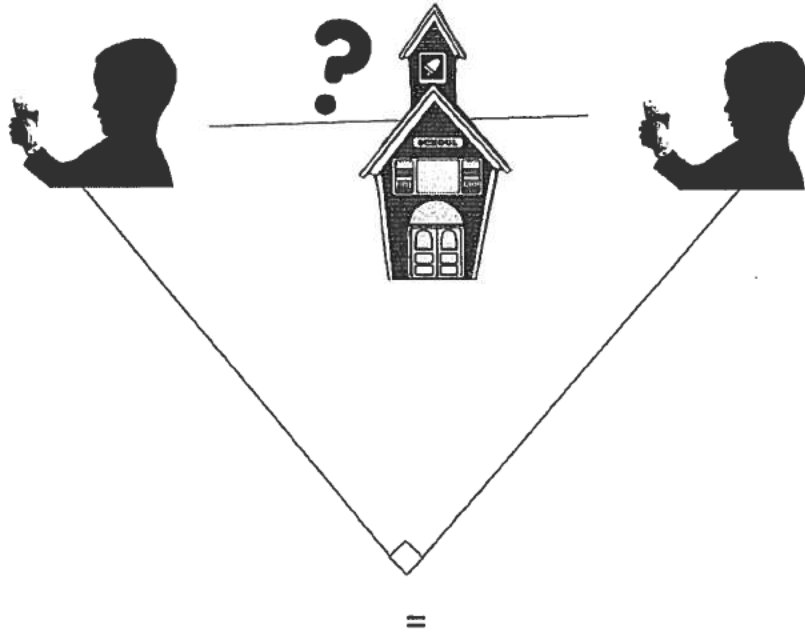
base = 22

height = _____

Name

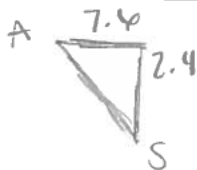
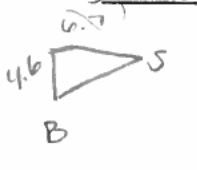
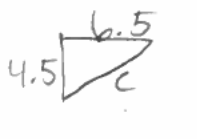
Salinas Period: 2 Date: _____

Directions: Use Map #1 to determine the distance between cell phone towers in Anaheim using the Pythagorean Theorem.



<p>1. AB = <u>7.7</u> units</p> <p> $4.5^2 + 6.3^2 = C^2$ $20.25 + 39.69 = C^2$ $\sqrt{59.94} = \sqrt{C^2}$ $7.7 \approx C$ </p>	<p>2. BC = <u>7.53</u> units</p> <p> $2.8^2 + 7^2 = C^2$ $7.84 + 49 = C^2$ $\sqrt{56.84} = \sqrt{C^2}$ $7.53 = C$ </p>
<p>3. CD = <u>3.6</u> units</p> <p> $2.7^2 + 2.9^2 = C^2$ $7.3 + 8.41 = C^2$ $\sqrt{15.71} = \sqrt{C^2}$ $3.6 = C$ </p>	<p>4. BD = <u>4.3</u> units</p> <p> $4.2^2 + 0.2^2 = C^2$ $17.64 + 0.04 = C^2$ $\sqrt{17.68} = \sqrt{C^2}$ $4.3 = C$ </p>
<p>5. AC = <u>7.2</u> units</p> <p> $7.1^2 + 0.7^2 = C^2$ $50.41 + 0.49 = C^2$ $\sqrt{50.9} = \sqrt{C^2}$ $7.2 = C$ </p>	<p>6. AD = <u>5.1</u> units</p> <p> $4.7^2 + 2^2 = C^2$ $22.1 + 4 = C^2$ $\sqrt{26.1} = \sqrt{C^2}$ $5.1 = C$ </p>

Directions: Use Map #2 and the Pythagorean theorem to determine the 2 closest cell towers to your school.

<p>1. AS = <u>7.9</u> units</p>  <p> $7.4^2 + 2.4^2 = C^2$ $57.76 + 5.76 = C^2$ $\sqrt{63.52} = \sqrt{C^2}$ $7.9 = C$ </p>	<p>2. BS = <u>8.9</u> units</p>  <p> $4.6^2 + 7.7^2 = C^2$ $21.16 + 59.29 = C^2$ $\sqrt{80.45} = \sqrt{C^2}$ $8.9 = C$ </p>
<p>3. CS = _____ units</p> <p> $2.2^2 + 5.1^2 = C^2$ 4.84 </p>	<p>4. DS = _____ units</p>  <p> $4.5^2 + 6.5^2 = C^2$ $20.25 + 42.25 = C^2$ $\sqrt{62.5} = \sqrt{C^2}$ $7.9 = C$ </p>

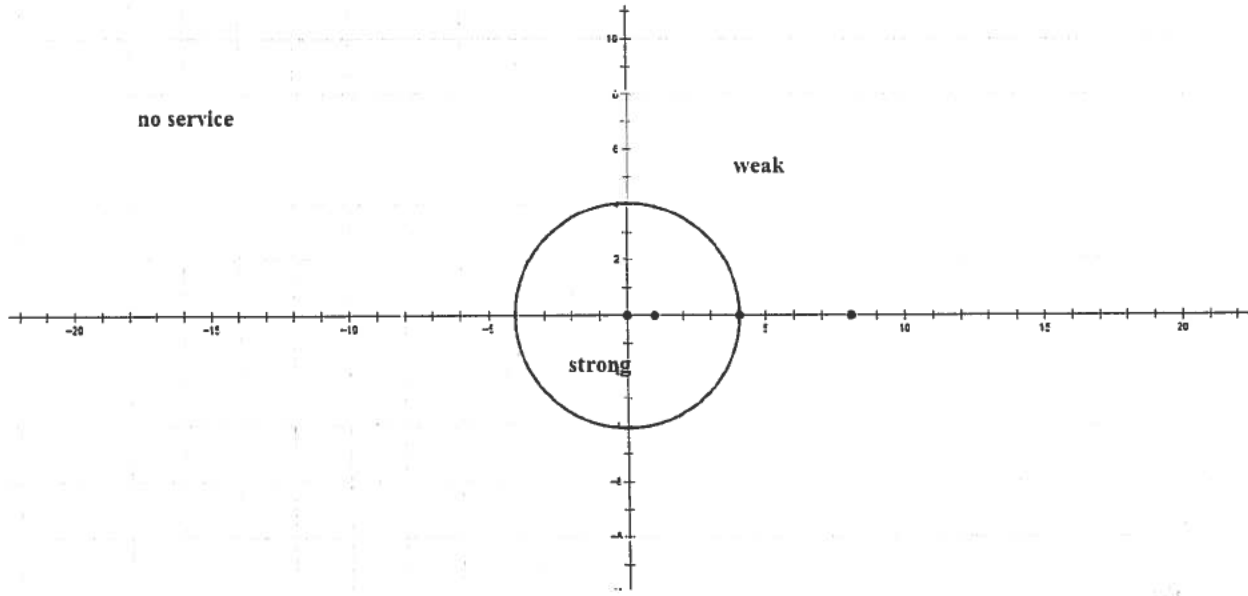
The closest cell tower to my school is tower C³. A

For this purpose assume that:

A **strong** cell signal has a radius 2 miles around the cell tower.

A **weak** cell signal has a radius between 2 and 4 miles around the cell tower.

There is **no** cell signal after a radius of 4 miles around the cell tower.



Trace the area of a strong signal around cell tower A and shade it green
 Trace the area of the weak signal around cell tower A and shade it yellow
 Outline the area of no signal around cell tower A with red color.

Trace the area of a strong signal around cell tower B and shade it green
 Trace the area of the weak signal around cell tower B and shade it yellow
 Outline the area of no signal around cell tower B with red color.

Create the circular reception area of a cellphone tower and use transformations to determine where you would place a third tower.

1. What areas of Anaheim already have great signal? What streets?

Decide where to place a third tower.

2. What are the coordinates of the third tower?
3. What is the distance from this tower C, to tower A and B.

AC = _____

BC = _____

4. What are the reasons you placed this tower in this location?

5. By placing this tower at this location what other parts of Anaheim now have improved cell service?

Salinas
Hora: 2

Measurements

Height Base
length \times width

$$\begin{aligned} \text{TV: } 17^2 + 26^2 &= x^2 & a^2 + b^2 = c^2 \\ 289 + 676 &= x^2 \\ \sqrt{965} &= \sqrt{x^2} \\ \hline 31.1 &= x \end{aligned}$$

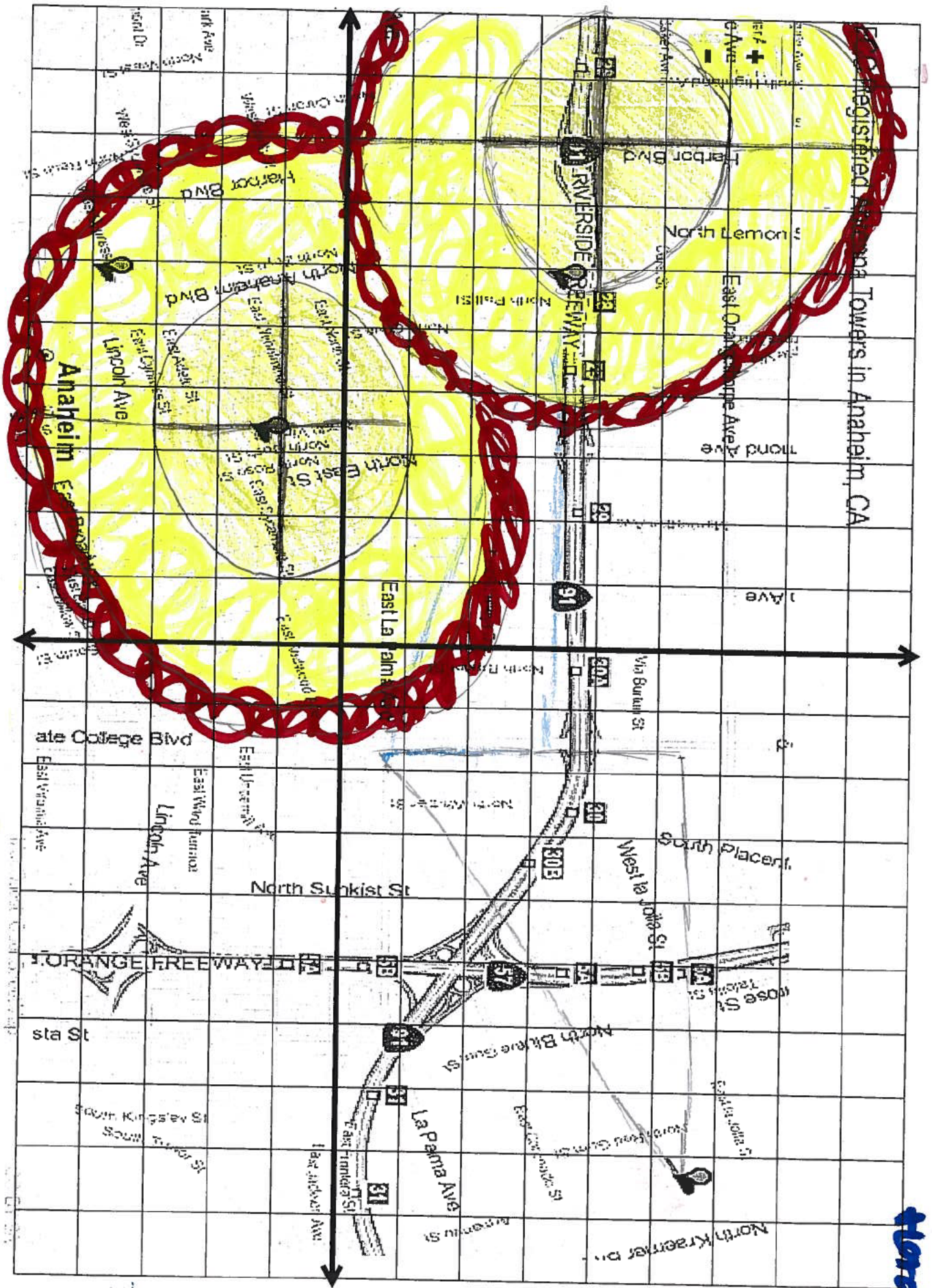
$$\begin{aligned} \text{Refrigerator } 68^2 + 35^2 &= x^2 \\ 4624 + 1225 &= x^2 \\ \sqrt{5849} &= \sqrt{x^2} \\ \hline 76.4 &= x \end{aligned}$$

$$\begin{aligned} \text{Computer: } 13^2 + 22^2 &= x^2 \\ 169 + 484 &= x^2 \\ \sqrt{653} &= \sqrt{x^2} \\ \hline 25.5 &= x \text{ metres} \end{aligned}$$

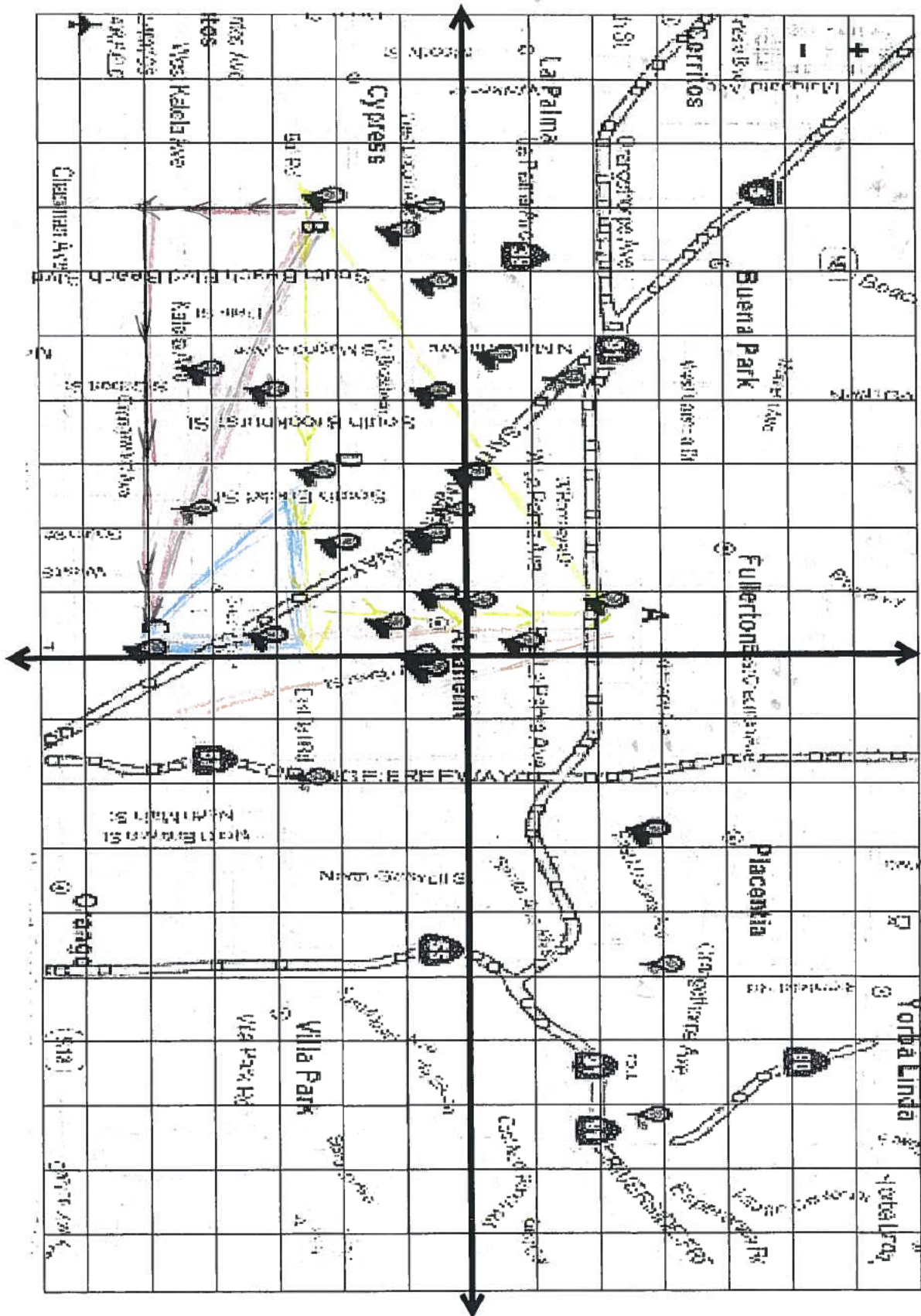
Microwave:

$$\begin{aligned} 11^2 + 20^2 &= x^2 \\ 121 + 400 &= x^2 \\ \sqrt{521} &= \sqrt{x^2} \\ \hline 22.8 &= x \end{aligned}$$

Registered Telephone Towers in Anaheim, CA



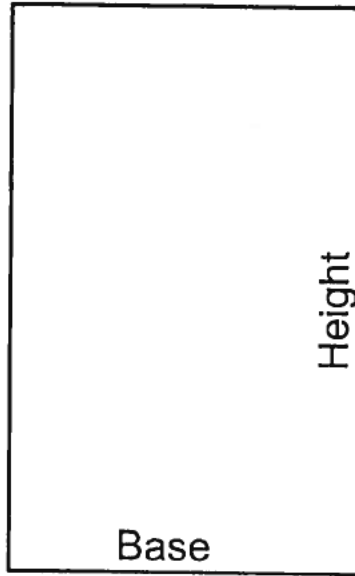
Salinas
Hana:2



TASK 2 Worksheet
Home Activity 1:

Measure the base and height of a rectangular object in your home.
Then using Pythagorean theorem calculate the screen size.

My Homes
Refrigerator



$$\begin{aligned} a^2 + b^2 &= c^2 \\ 68^2 + 35^2 &= x^2 \\ 4624 + 1225 &= x^2 \\ \sqrt{5849} &= \sqrt{x^2} \\ \hline 76.4 &= x \end{aligned}$$

base = 35in.

height = 68in.

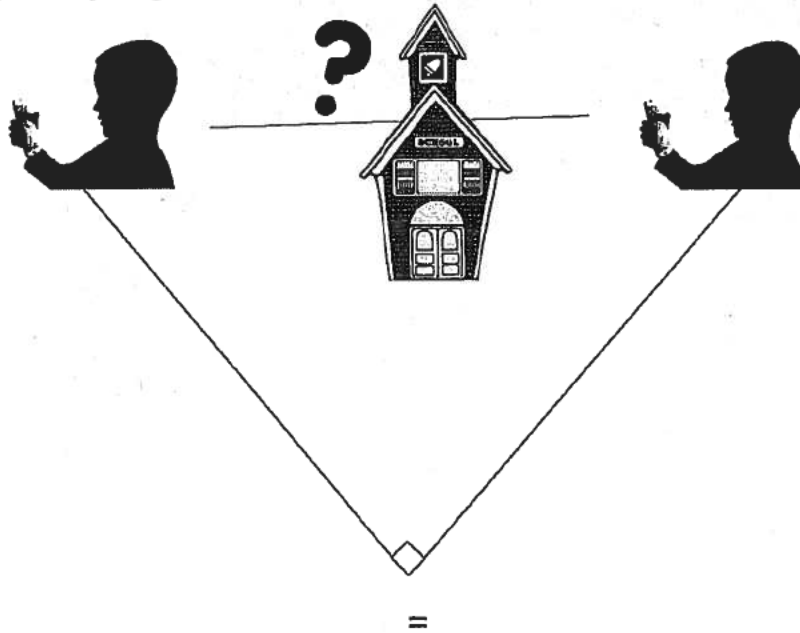
Name

Fernandez

Period: 1


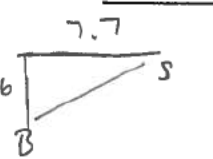

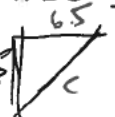
Date: 5-16-16

Directions: Use Map #1 to determine the distance between cell phone towers in Anaheim using the Pythagorean Theorem.



<p>1. AB= _____ units</p> $4.5^2 + 6.3^2 = c^2$ $20.25 + 39.69 = c^2$ $\sqrt{59.94} = \sqrt{c^2}$ $7.7 = c$	<p>2. BC= _____ units</p> $2.8^2 + 7^2 = c^2$ $7.84 + 49 = c^2$ $\sqrt{56.84} = \sqrt{c^2}$ $7.53 = c$
<p>3. CD= _____ units</p> $2.7^2 + 2.9^2 = c^2$ $7.3 + 8.41 = c^2$ $\sqrt{15.71} = \sqrt{c^2}$ $3.96 = c$	<p>4. BD= _____ units</p> $1.2^2 + 6.2^2 = c^2$ $1.44 + 38.44 = c^2$ $\sqrt{39.88} = \sqrt{c^2}$ $6.31 = c$
<p>5. AC= _____ units</p> $7.1^2 + 0.7^2 = c^2$ $50.41 + 0.49 = c^2$ $\sqrt{50.9} = \sqrt{c^2}$ $7.2 = c$	<p>6. AD= _____ units</p> $4.7^2 + 2^2 = c^2$ $22.09 + 4 = c^2$ $\sqrt{26.09} = \sqrt{c^2}$ $5.1 = c$

Directions: Use Map #2 and the Pythagorean theorem to determine the 2 closest cell towers to your school.

<p>1. AS = _____ units</p>  $7.6^2 + 7.4^2 = C^2$ $57.8 + 54.8 = C^2$ $\sqrt{112.6} = \sqrt{C^2}$ $10.6 = C$	<p>2. BS = _____ units</p>  $9.6^2 + 1.7^2 = C^2$ $92.16 + 2.89 = C^2$ $\sqrt{95.05} = \sqrt{C^2}$ $9.75 = C$
<p>3. CS = _____ units</p>  $2.2^2 + 5.1^2 = C^2$ $4.84 + 26.01 = C^2$ $\sqrt{30.85} = \sqrt{C^2}$ $5.55 = C$	<p>4. DS = _____ units</p>  $4.5^2 + 6.5^2 = C^2$ $20.25 + 42.25 = C^2$ $\sqrt{62.5} = \sqrt{C^2}$ $7.9 = C$

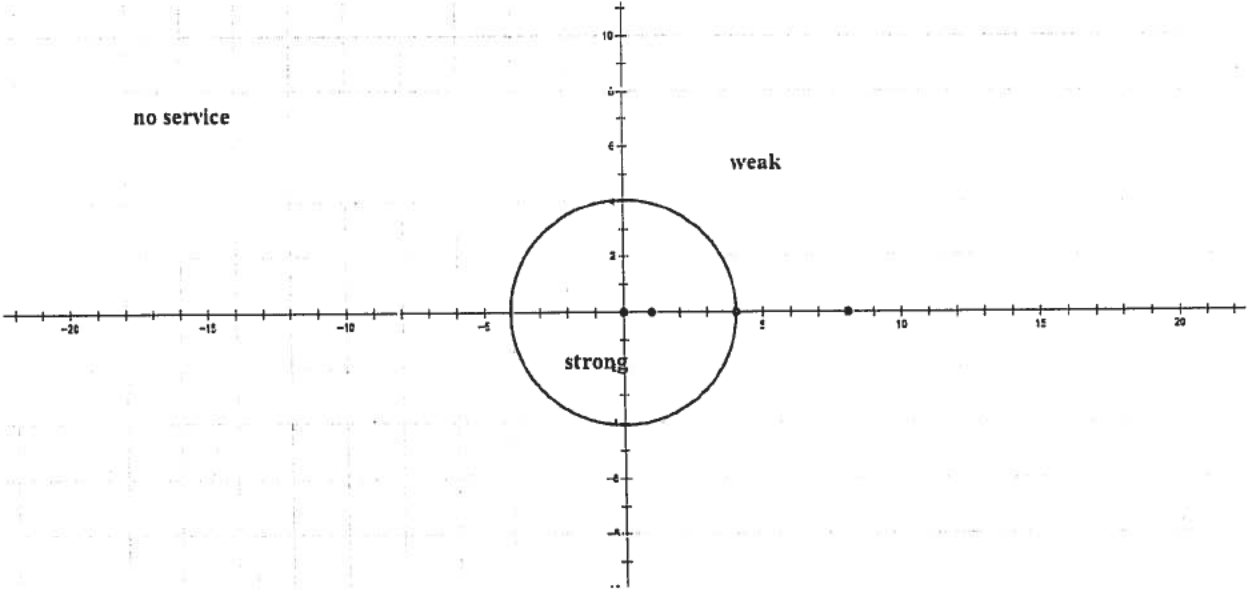
The closest cell tower to my school is tower C & A.

For this purpose assume that:

A **strong** cell signal has a radius 2 miles around the cell tower.

A **weak** cell signal has a radius between 2 and 4 miles around the cell tower.

There is **no** cell signal after a radius of 4 miles around the cell tower.



Trace the area of a strong signal around cell tower A and shade it green
 Trace the area of the weak signal around cell tower A and shade it yellow
 Outline the area of no signal around cell tower A with red color.

Trace the area of a strong signal around cell tower B and shade it green
 Trace the area of the weak signal around cell tower B and shade it yellow
 Outline the area of no signal around cell tower B with red color.

Create the circular reception area of a cellphone tower and use transformations to determine where you would place a third tower.

1. What areas of Anaheim already have great signal? What streets?

East, Kramer streets

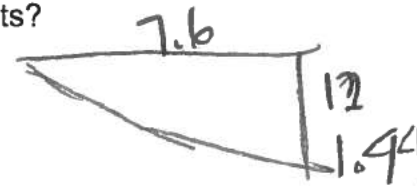
Decide where to place a third tower.

2. What are the coordinates of the third tower?

3. What is the distance from this tower C, to tower A and B.

AC = 7.7

BC = 6.2



4. What are the reasons you placed this tower in this location?

Because it is near our school
 and it will give us better reception

5. By placing this tower at this location what other parts of Anaheim now have improved cell service?

Sycamore Plaza

McDonalds

Starbus

Advantages & Disadvantages of having
a cellphone tower close to Syracuse

How Cellphones Work

- 7 billion subscriptions
- over 90 percent of the phones in use are cellphones
- cellular phones, mobile phones or radio telephones

Cellphones use wireless technology

- landlines & cellphones work in a completely different way
- land lines carry calls along electrical cables
- cellphones can send and receive calls without any wire connections
- using electromagnetic radio waves send and receive the signals that would normally travel down wire

length & width

Hazel's
Refrigerator
length = 68 inches
width = 35 inches

$$68^2 + 35^2 = x^2$$

$$4624 + 1225 = x^2$$

$$\frac{\sqrt{5849}}{76.4} = \frac{x}{x}$$

Giuseppe's
TV: length x width

$$17^2 + 26^2 = x^2$$

$$289 + 676 = x^2$$

$$\frac{\sqrt{965}}{31.1} = \frac{\sqrt{x^2}}{x}$$

Beatriz's
Microwave: length x width

$$11^2 + 20^2 = x^2$$

$$121 + 400 = x^2$$

$$\frac{\sqrt{521}}{22.8} = \frac{\sqrt{x^2}}{x}$$

$a^2 + b^2 = c^2$

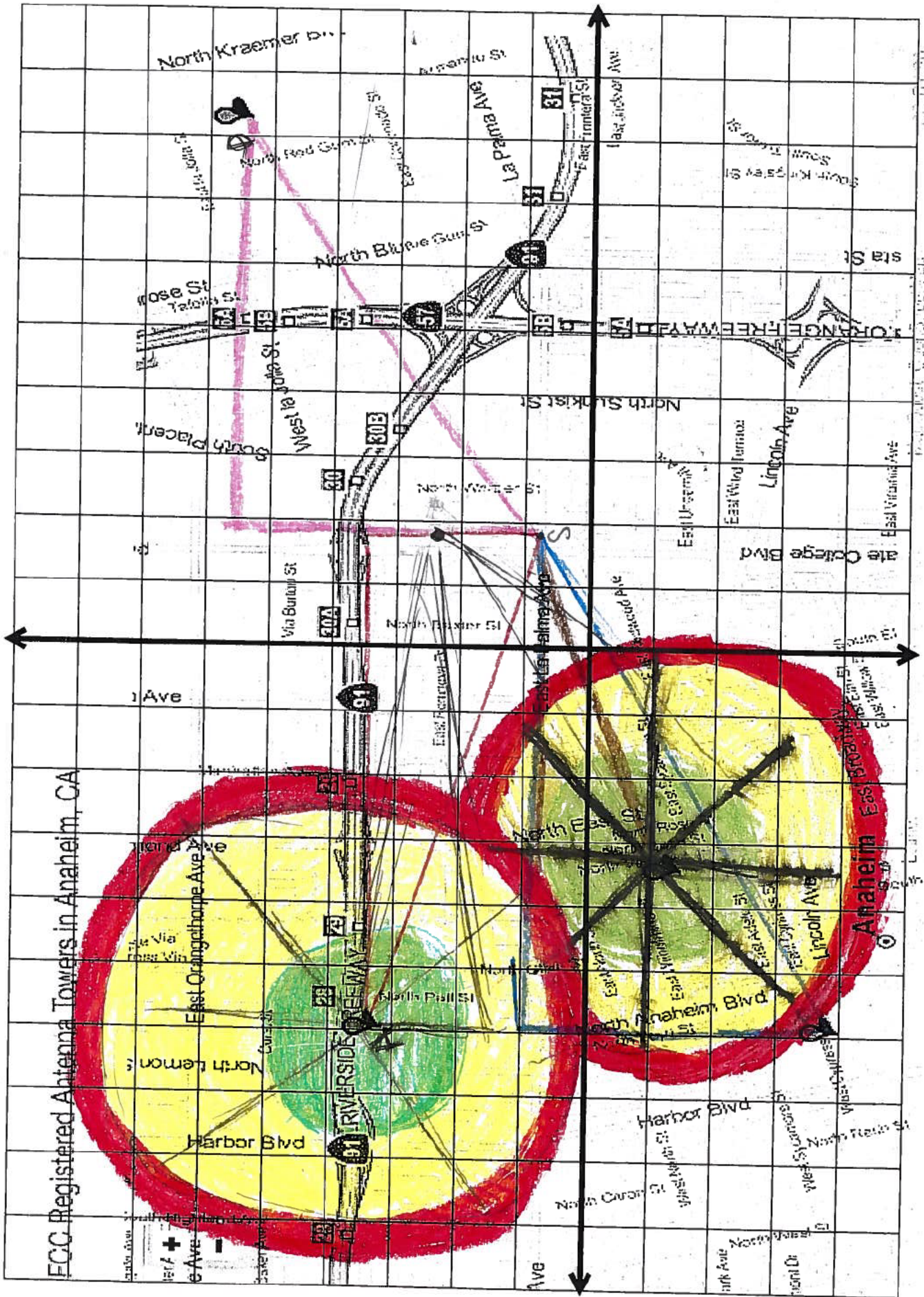
Fernanda's
Computer: length x width

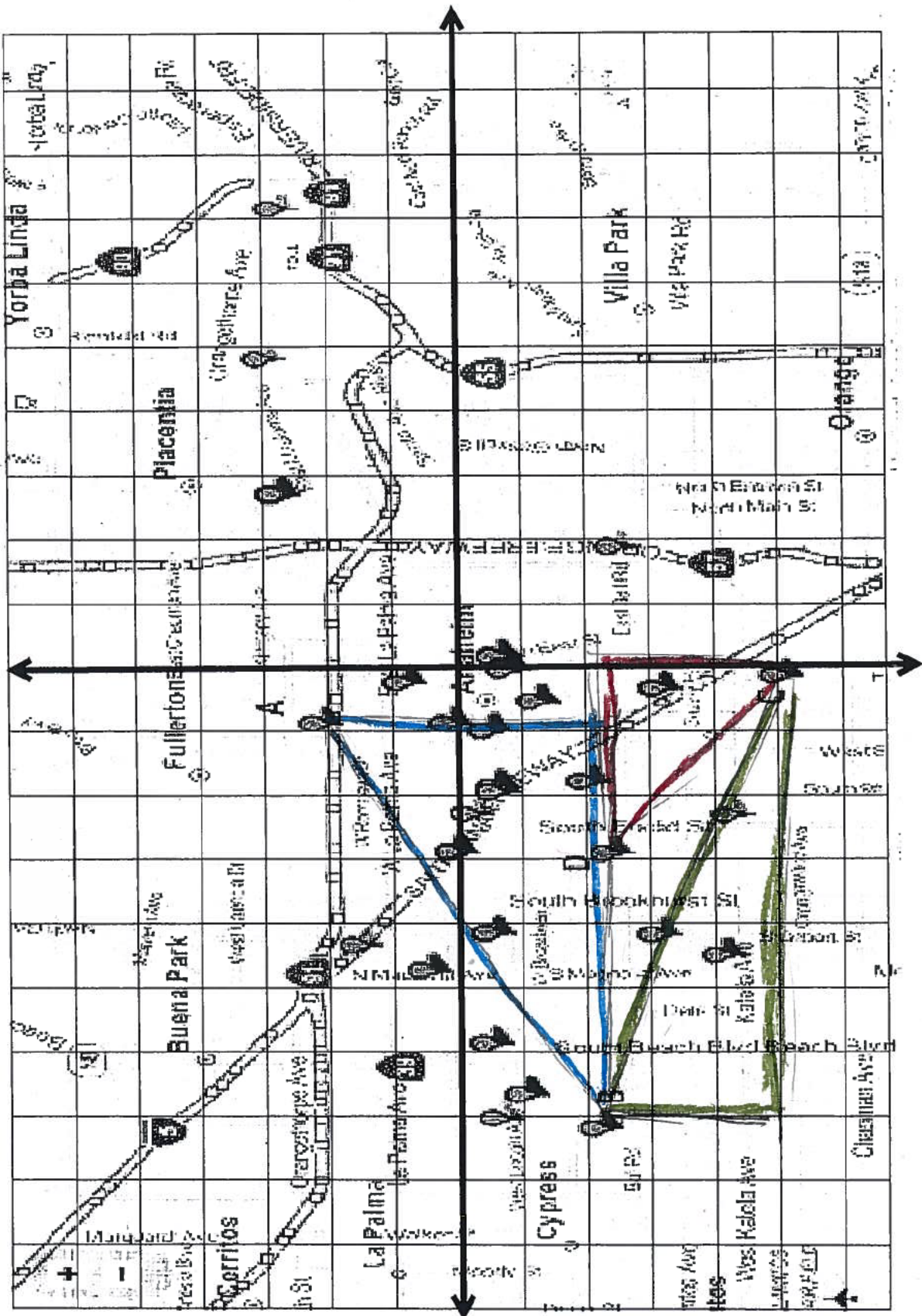
$$13^2 + 22^2 = x^2$$

$$169 + 984 = x^2$$

$$\frac{\sqrt{653}}{25.5} = \frac{\sqrt{x^2}}{x}$$

FCC Registered Antenna Towers in Anaheim, CA





Persuasive Pitch: For or Against Building Cell Towers Near Schools

Teacher Name: Mrs. Padilla

Student Name Fernandez

CATEGORY	4 - Above Standards	3 - Meets Standards	2 - Approaching Standards	1 - Below Standards	Score
Attention Grabber	The introductory paragraph has a strong hook or attention grabber that is appropriate for the audience. This could be a strong statement, a relevant quotation, statistic, or question addressed to the reader.	The introductory paragraph has a hook or attention grabber, but it is weak, rambling or inappropriate for the audience.	The author has an interesting introductory paragraph but the connection to the topic is not clear.	The introductory paragraph is not interesting AND is not relevant to the topic.	
Position Statement	The position statement provides a clear, strong statement of the author's position on the topic.	The position statement provides a clear statement of the author's position on the topic.	A position statement is present, but does not make the author's position clear.	There is no position statement.	
Support for Position	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement. The writer anticipates the reader's concerns, biases or arguments and has provided at least 1 counter-argument.	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement.	Includes 2 pieces of evidence (facts, statistics, real-life experiences) that support the position statement.	Includes 1 or fewer pieces of evidence (facts, statistics, examples, real-life experiences).	

Evidence and Examples	All of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.	Most of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.	At least one of the pieces of evidence and examples is relevant and has an explanation that shows how that piece of evidence supports the author's position.	Evidence and NOT relevant AND/OR are not explained.
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Sequencing	Arguments and support are provided in a logical order that makes it easy and interesting to follow the author's train of thought.	Arguments and support are provided in a fairly logical order that makes it reasonably easy to follow the author's train of thought.	A few of the support details or arguments are not in an expected or logical order, distracting the reader and making the essay seem a little confusing.	Many of the support details or arguments are not in an expected or logical order, distracting the reader and making the essay seem very confusing.
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Closing paragraph	The conclusion is strong and leaves the reader solidly understanding the writer's position. Effective restatement of the position statement begins the closing paragraph.	The conclusion is recognizable. The author's position is restated within the first two sentences of the closing paragraph.	The author's position is restated within the closing paragraph, but not near the beginning.	There is no conclusion - the paper just ends.
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Sources	All sources used for quotes, statistics and facts are credible and cited correctly.	All sources used for quotes, statistics and facts are credible and most are cited correctly.	Most sources used for quotes, statistics and facts are credible and cited correctly.	Many sources are suspect (not credible) AND/OR are not cited correctly.
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