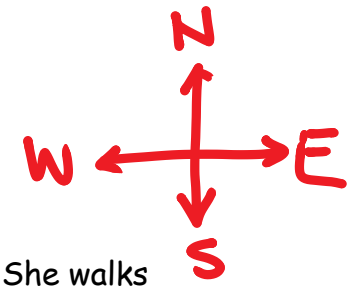
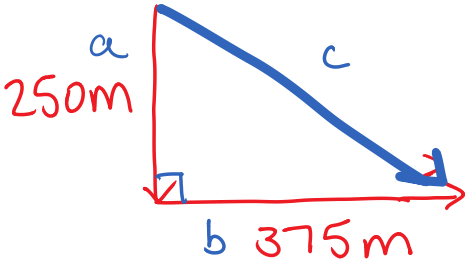
Date:_____

3.5 Notes: Applying the Pythagorean Relationship



Sherry walks from her house to the coffee shop to get her coffee. She walks 250m south along 12th avenue and 375m east along 56th to get there. What is the distance from her home to the salon "as the crow flies"?



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

$250^2+375^2=c^2$

$62500+140625=c^2$

$\sqrt{203125}=\sqrt{c^2}$

$450.7=c$

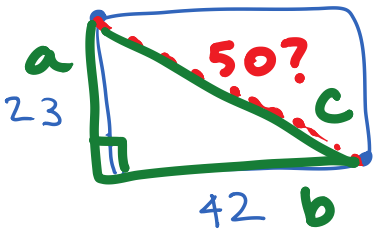
450.7m

What do you think the phrase "as the crow flies" means?

Taking the most direct route between two points

Where do you think the phrase comes from?

A TV is advertised as being a 50" plasma. When you measure the screen, it measures 23" x 42". Is it REALLY 50" from corner to corner?



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

$23^2+42^2=c^2$

$529+1764=c^2$

$2293=c^2$

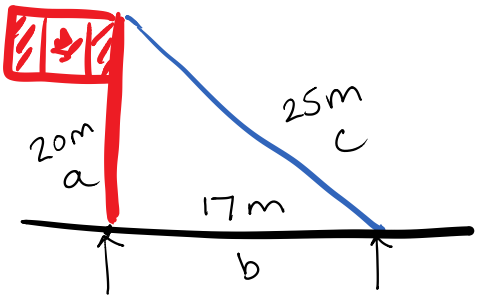
$\sqrt{2293}=c$

$47.9"=c$

48" 47.89"

NO. It is not really 50" from corner to corner.

A flagpole is 20m tall. It has a supporting wire attached to the top that is 25m long. When you measure the distance from the base of the flagpole to where the wire is attached to the ground, you find that it is 17m away. Is the flagpole at a 90° angle to the ground? How do you know?



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

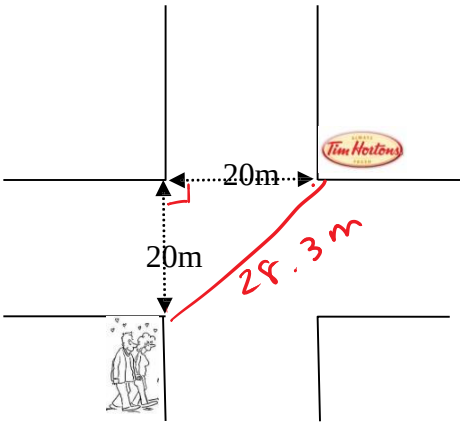
$20^2 + 17^2$	25^2
$400 + 289$	625
689	

$689 \neq 625$

The flagpole is Not at a 90° angle to the ground.

$a^2 + b^2 \neq c^2$

Jay and his girlfriend are standing at the corner of 12th and 56th. They want to walk to the opposite corner to get some TimBits. His girlfriend uses the crosswalks to get there, but Jay walks right through the intersection. How much farther did his girlfriend walk?



Jay's GF

$d = 20 + 20$

$= 40m$

Jay

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

$20^2 + 20^2 = c^2$

$400 + 400 = c^2$

$800 = c^2$

$\sqrt{800} = c$

$28.3m$

$40 - 28.3 = 11.7m$

Jay's GF walked 11.7m farther than Jay.