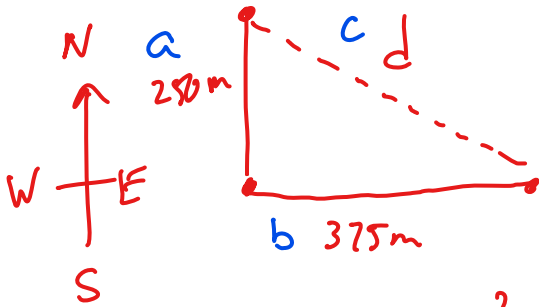


Date: _____

KEY

3.5 Notes: Applying the Pythagorean Relationship

1) Shawanda walks from her house to the hair salon to get her hair did. 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"?



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

$$(250)^2 + (375)^2 = d^2$$

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

$$450.69... = d$$

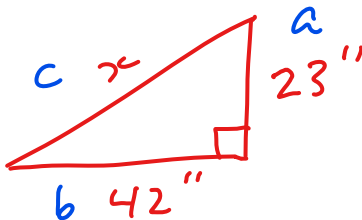
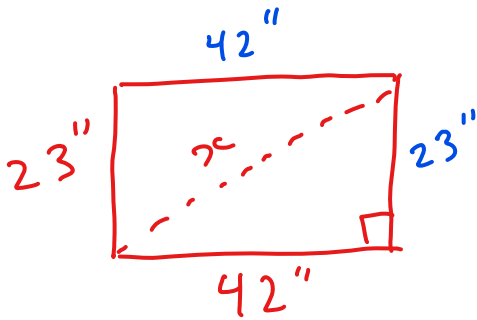
$$\boxed{450.7 \text{ m} = d}$$

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

in a straight line

Where do you think the phrase comes from?

2) 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?



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

$$(23)^2 + (42)^2 = x^2$$

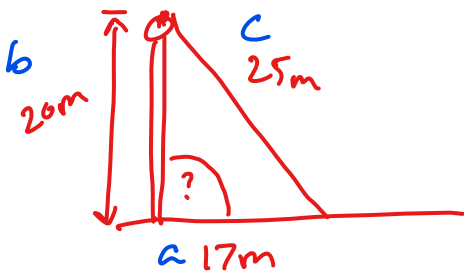
$$\sqrt{2293} = \sqrt{x^2}$$

$$47.88... = x$$

$$x = 47.9"$$

No, it is not a 50" screen.

3) 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 it at a 90° angle to the ground? How do you know?



THINK!

If the Pythagorean Relationship is satisfied,

then it is a right triangle, i.e. it is a 90° angle.

so, CHECK:

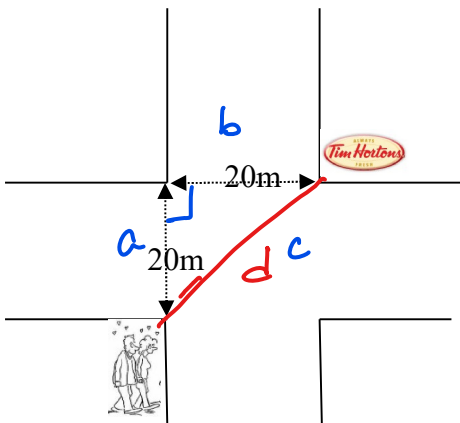
$$a^2 + b^2 = c^2$$

$$(17)^2 + (20)^2 = (25)^2$$

$$689 = 625 \text{ (x)}$$

No, it is not a 90° angle.

4) Jay Walker and his lady 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?



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

$$(20)^2 + (20)^2 = d^2$$

$$\sqrt{800} = \sqrt{d^2}$$

$$28.28... = d$$

$$d = 28.3 \text{ m}$$

$$\text{Distance farther} = d_{\text{GF}} - d_{\text{JW}}$$

$$= 40 - 28.28...$$

$$= 11.71...$$

$$\text{distance farther} = 11.7 \text{ m}$$

① His girlfriend walked $20\text{m} + 20\text{m} = 40\text{m}$.

② Let d BE THE DISTANCE JAY WALKED.