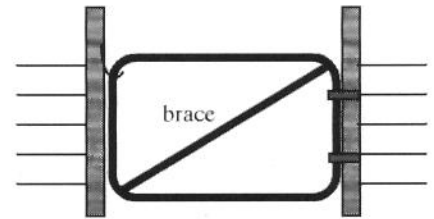


1. To estimate the length of a brace for a gate that he is building, Michael used the Pythagorean Theorem. If his calculations gave him a length of $\sqrt{20.1}$ feet, which of the following indicates a reasonable length for the brace?

- A. Between 3 and 4 ft C. Between 5 and 6 ft
B. Between 4 and 5 ft D. Between 6 and 7 ft



To estimate the length of a brace for a gate that he is building, Michael used the Pythagorean Theorem. If his calculations gave him a length of $\sqrt{39.4}$ feet, which of the following indicates a reasonable length for the brace?

- A. Between 3 and 4 ft C. Between 5 and 6 ft
B. Between 4 and 5 ft D. Between 6 and 7 ft

2. One of the four expressions below is NOT equal to the other three. Circle the expression that has a different value.

$\sqrt{9 \cdot 8}$

$7\sqrt{2}$

$6\sqrt{2}$

$\sqrt{72}$

One of the four expressions below is NOT equal to the other three. Circle the expression that has a different value.

$\sqrt{8 \cdot 4}$

$4\sqrt{2}$

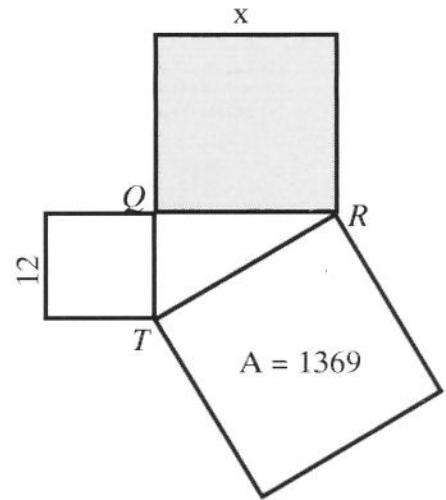
$16\sqrt{2}$

$\sqrt{32}$

3. If $\triangle QRT$ is a right triangle formed by the placement of three squares as shown in the drawing, what is the area of the shaded square? Justify your answer algebraically (i.e. with a formula).

Equation _____

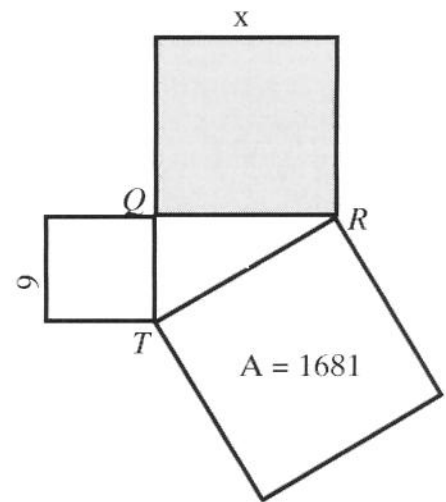
Area (x^2) = _____



- If $\triangle QRT$ is a right triangle formed by the placement of three squares as shown in the drawing, what is the area of the shaded square? Justify your answer algebraically (i.e. with a formula).

Equation _____

Area (x^2) = _____



4. Renata plans to place ceramic trim tiles along the outer edge of her right triangular kitchen island. If each tile is 6 inches long, how many tiles will she need?

Equation _____

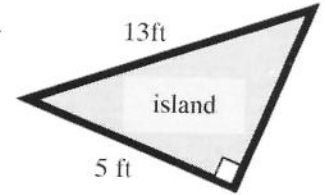
Missing side = _____

Perimeter = _____

Number of Tiles = _____



7/8" by 6" trim tile



- Renata plans to place ceramic trim tiles along the outer edge of her right triangular kitchen island. If each tile is 6 inches long, how many tiles will she need?

Equation _____

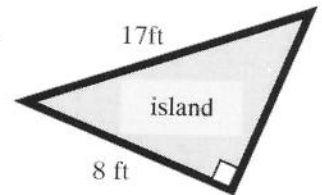
Missing side = _____

Perimeter = _____

Number of Tiles = _____



7/8" by 6" trim tile

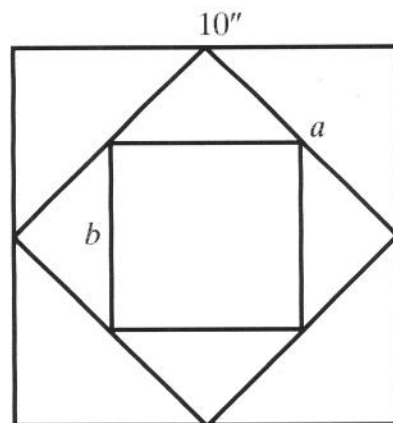


5. The largest square in the design shown measures $10''$ by $10''$. Find the side lengths, a and b of the other squares.

Show your work for full credit. (4 pts.)

$a =$ _____

$b =$ _____

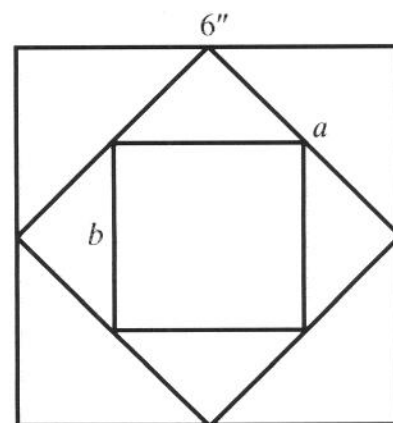


- The largest square in the design shown measures $6''$ by $6''$. Find the side lengths, a and b of the other squares.

Show your work for full credit. (4 pts.)

$a =$ _____

$b =$ _____

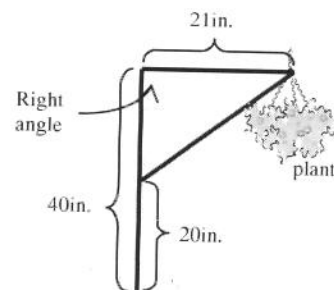


6. Patrice has a plant hanger made of iron like the one shown at right. She wants to attach a string of twinkling lights to the entire frame. How many inches of lights does she need?

Equation _____

Missing Side _____

Inches of light _____

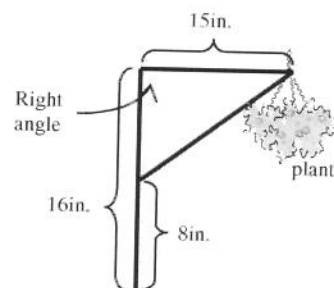


- Patrice has a plant hanger made of iron like the one shown at right. She wants to attach a string of twinkling lights to the entire frame. How many inches of lights does she need?

Equation _____

Missing Side _____

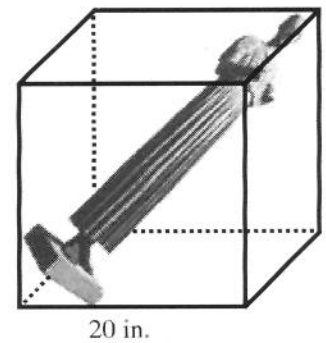
Inches of light _____



7. Enrique needs to pack an expensive statue into a box which is in the shape of a cube. If the statue just barely fits inside the box along its diagonal, which of the following is closest to the height of the statue?

- A. 24 in. C. 30 in.
B. 27 in. D. 41 in.

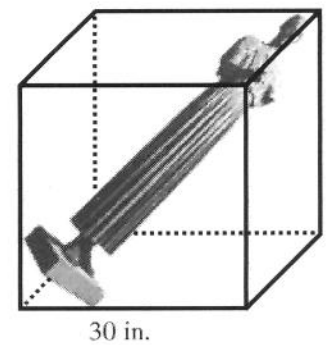
Show work here for full credit.



7. Enrique needs to pack an expensive statue into a box which is in the shape of a cube. If the statue just barely fits inside the box along its diagonal, which of the following is closest to the height of the statue?

- A. 34 in. C. 40 in.
B. 37 in. D. 51 in.

Show work here for full credit.



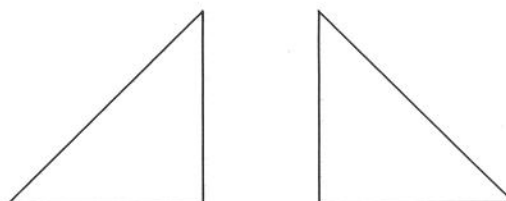
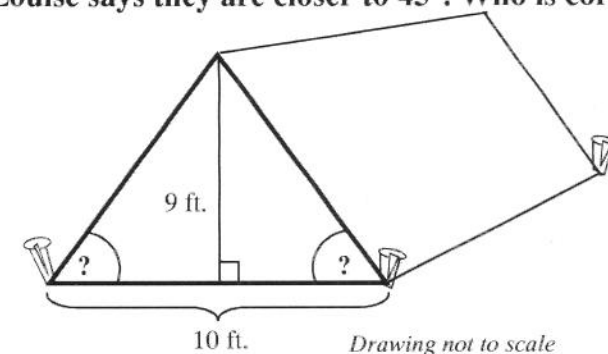
8. Burt and Louise pitched their camping tent as shown at right. Burt says the angles between the tent sides and the ground are close to 60° but Louise says they are closer to 45° . Who is correct and why?

Circle one:

Burt is correct

Louise is correct

Why? _____



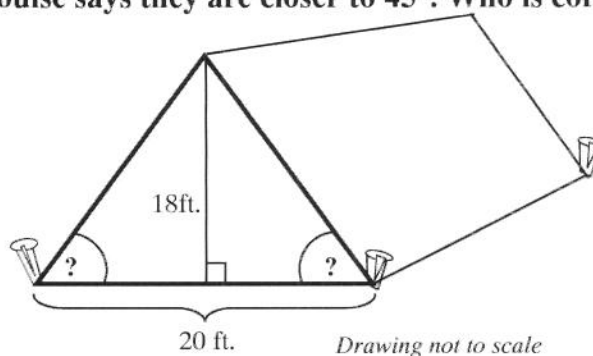
- Burt and Louise pitched their camping tent as shown at right. Burt says the angles between the tent sides and the ground are close to 60° but Louise says they are closer to 45° . Who is correct and why?

Circle one:

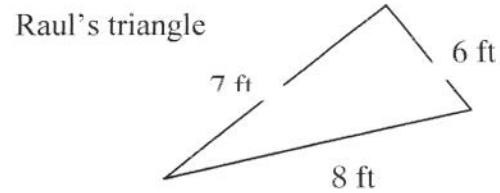
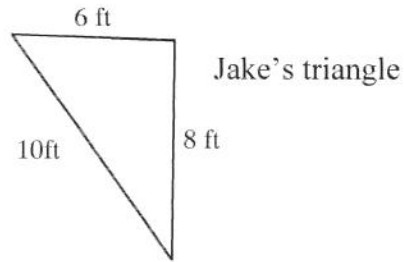
Burt is correct

Louise is correct

Why? _____



9. Jake and Raul were competing for a job as a landscaper's apprentice. They were each told to lay out a right triangle on the ground using exactly 30 feet of string. Each man's triangle is shown below.



- a) Which man successfully made a right triangle? Justify your answer algebraically.

Circle one: *Jake*

Raul

Equation:

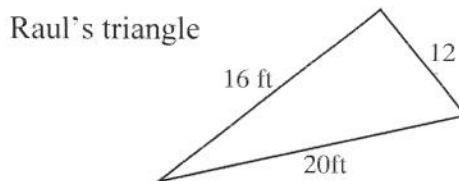
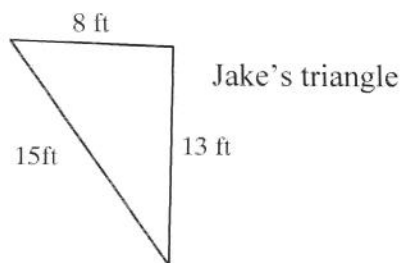
Equation:

- b) Classify the other triangle as either acute or obtuse and explain why.

Circle one: *Acute* *Obtuse*

Equation _____

Jake and Raul were competing for a job as a landscaper's apprentice. They were each told to lay out a right triangle on the ground using exactly 30 feet of string. Each man's triangle is shown below.



- c) Which man successfully made a right triangle? Justify your answer algebraically.

Circle one: *Jake*

Raul

Equation:

Equation:

- d) Classify the other triangle as either acute or obtuse and explain why.

Circle one: *Acute* *Obtuse*

Equation _____