Monumental Pyramids

Image One

https://www.flickr.com/photos/89241789@N00/750441966

Image Two

https://www.flickr.com/photos/sam_and_ian/89836895
Name(s) ______________________________

Directions: Compare and contrast the two pictures of pyramids.

**Venn Diagram Graphic Organizer**

- Differences between Pyramids
- Differences between Pyramids
- Similarities

[Map of the world](https://openclipart.org/detail/306009/political-map-of-the-world)
Readings Worksheet

Read How Did Pyramids Affect People’s Lives in Ancient Egypt? and answer the following questions.  

1. What were 3 of the effects on human daily life caused by the building pyramids? (9 pts)
   A. ________________________________________________________________
   B. ________________________________________________________________
   C. ________________________________________________________________

2. How do you think the pyramids changed their landscape? (4 pts)

Read How Did Egyptian Build the Pyramids? https://www.thegreatcoursesdaily.com/how-did-egyptians-build-the-pyramids/ and We May Finally Know How the Pyramids Were Built 
https://www.discovery.com/exploration/how-the-pyramids-were-built

1. What are 3 technologies that could have been used to create the pyramids? (9 pts)
   A. ________________________________________________________________
   B. ________________________________________________________________
   C. ________________________________________________________________

2. What is one fact that you found interesting in this reading? (3 pts)
Read How the Pyramids Were Built and answer the following questions.

1. What are 3 technologies that could have been used to create the pyramids (9 pts)

Possible answers: leveling the land down to the bedrock, Grand Gallery could have been used to store blocks that were to be slid down to seal the entrance, the pyramid was built around the sarcophagus, relieving chambers and triangles so all the force of the weight of the pyramid is distributed throughout the pyramid, used a ramp, used switchbacks, used a ramp with staircases, wooden posts and rope and pulley system

2. What is one fact that you found interesting in this reading? (3 pts) Answers will vary.
How Did They Create the Pyramids?

Ancient Egyptians used the fact that a triangle with sides of length 3, 4 and 5 contained a right-angle to mark out field boundaries and for building.

http://www.ck3llc.net/Archives/2012/2ndQtr/MainArticle.html

https://www.haikudeck.com/pythagorean-triples-education-presentation-0190ebebbf
What do you notice about the relationship between the sides of these triangles in the following 4 pictures? What conclusions can you draw about right triangles?

Observations:
Using the model given, come up with a relationship between the lengths of the sides of the triangle.

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Vocabulary practice: Fill in the blanks.

**legs:** The _______________ sides that make the ___________ angle are called the legs of the right triangle.

**hypotenuse:** The side ________________________to the right angle and the ___________ side, is called the hypotenuse.

**Pythagorean Theorem:** The sum of the _______________ of the two __________, is always equal to the square of the _______________.

________ + _______ = _______ This is only true for ________ triangles

Model Problem: Alex needs to use a ladder to hang holiday lights. His house is 24 feet tall and there is a flower bed that extends 4 feet from the side of the house. How long of a ladder will he need to reach the top and be outside of the flower bed?
Step-by-Step)

Follow the steps if you are lost:

1. Write notes and formulas in the box on the left.
2. Write the problem in the top right box.
3. Put one step in each box to complete the problem.
4. Write the answer in the bottom right box.

Notes and Formulas:

Pythagorean Theorem:

\[ a^2 + b^2 = c^2 \]

Problem:

Find the length of the missing side.

\[ \triangle \]

12

Step 1:

\[ a = 12 \quad b = 9 \quad c = ? \]

Step 2:

\[ a^2 + b^2 = c^2 \]
\[ 12^2 + 9^2 = c^2 \]

Step 3:

\[ 144 + 81 = c^2 \]
\[ 225 = c^2 \]

Step 4:

\[ c = \sqrt{225} \]
\[ c = 15 \]

Answer:

\[ 15 = c \]
1. If \(a=10\) and \(b=13\), find \(c\).

2.

3.
4. Show your work: The Palace of Peace and Accord in Astana, Kazakhstan has a right square-based pyramid structure. The length of a side of a square base is 62m and the vertical height of the pyramid is 62m. What is the slant height $l$ of one of the triangular faces? *Round your answer to the nearest tenth of a meter.*

https://www.flickr.com/photos/amanderson/36192267331

**Scoring Rubric**
This is how you will be graded.

<table>
<thead>
<tr>
<th>Proficiency Level 1</th>
<th>Proficiency Level 2</th>
<th>Proficiency Level 3</th>
<th>Proficiency Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 pts</td>
<td>8 pts</td>
<td>6 pts</td>
<td>4 pts</td>
</tr>
<tr>
<td>Knows the Pythagorean Theorem formula</td>
<td>Substitutes the values in the formula correctly</td>
<td>Can correctly find the square roots of the values</td>
<td>Can calculate the missing side length</td>
</tr>
</tbody>
</table>
Pythagorean Theorem Inquiry Answer Key

Page One: This triangle is a right-angled triangle. Area of the larger square (on the largest side of the right triangle) is same as the sum of the areas of two smaller squares (on two smaller sides of the right triangle).

Page Two: This triangle is a right-angled triangle. Area of the larger square (on the largest side of the right triangle) is same as the sum of the areas of two smaller squares (on two smaller sides of the right triangle).

Page Three: This triangle is not a right-angled triangle. The area of the larger square is NOT the same as the sum of the areas of two smaller squares.

Pythagorean Theorem Practice Answer Key

legs: The _______2____ sides that make the ____ right _____ angle are called the legs of the right triangle.

hypotenuse: The side _______opposite____________________ to the right angle and the ______longest_____ side, is called the hypotenuse.

Pythagorean Theorem: The sum of the ____ squares ___________ of the two ____ legs___, is always equal to the square of the ____hypotenuse__________________.

_____leg² + _____leg² = _____hypotenuse______ This is only true for ___right_______ triangles

Model Problem: Alex needs to use a ladder to hang holiday lights. His house is 24 feet tall and there is a flower bed that extends 4 feet from the side of the house. How long of a ladder will he need to reach the top and be outside of the flower bed?

24.3 feet

Independent or Group Practice Answer Key

1. 16.4
2. 19.1
3. 30
4. 69.3 m