

Questions?



Are you ready?

Chapter 4 Trigonometry

4.1.1 Constant Ratios in Right Triangles

I/C 4-1 Together
4-2 to 4-5 Teams

H/W 4-6 to 4-10

Slope, Slope Triangle, and Slope Ratio

Angles and Angle Measurements

The connection between slope and angle.

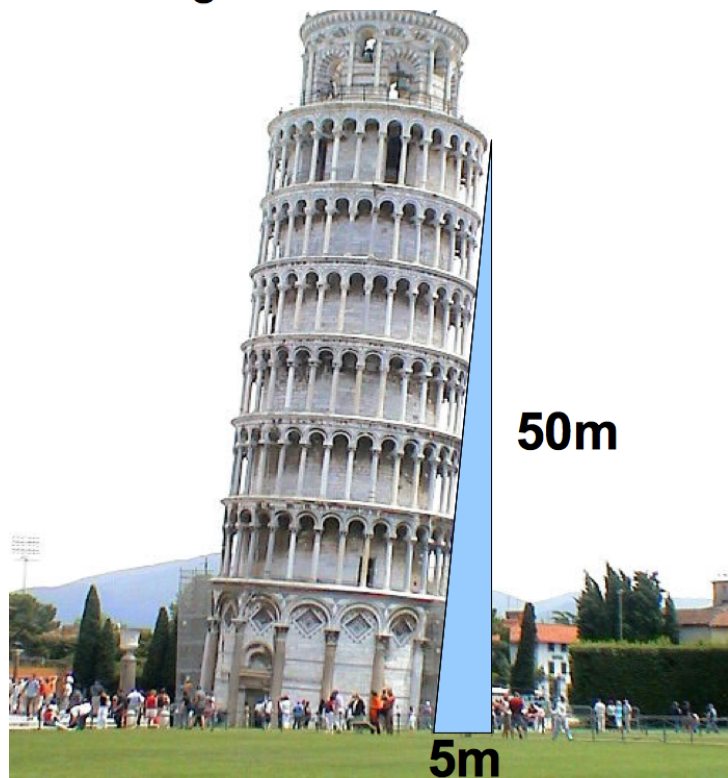
4-1 The Leaning Tower of Pisa

What is the slope of the lean?

What is the angle of the lean?



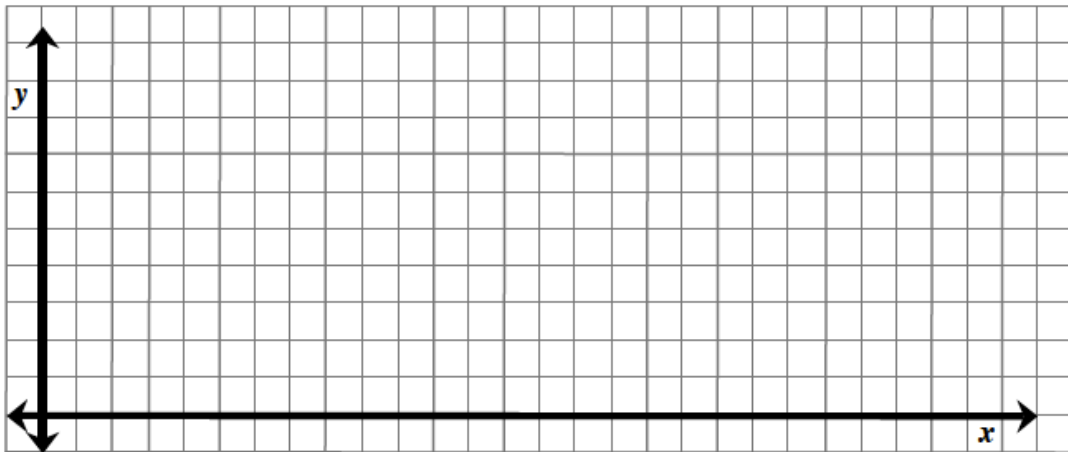
What is the length of the building?



4.1.1 Constant Ratios in Right Triangles

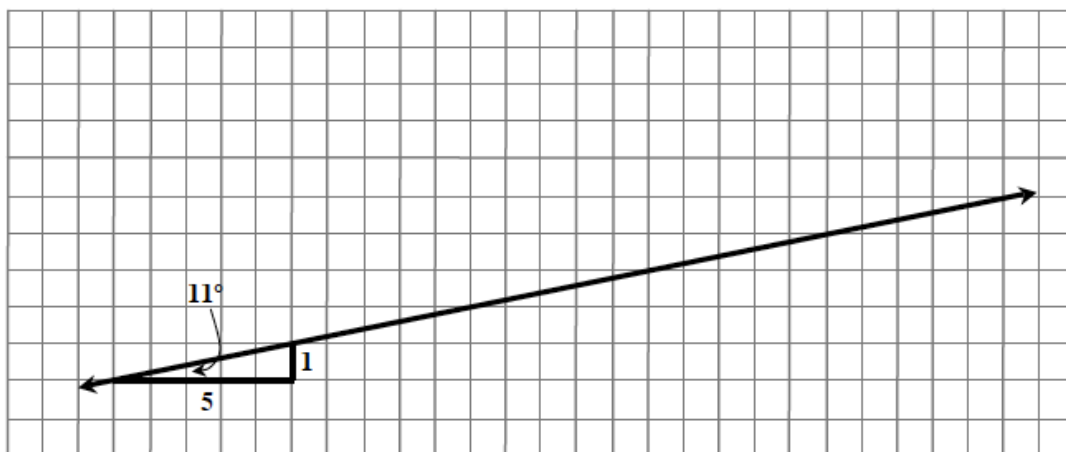
Your turn.

- I/C 4-2 to 4-5 Together
- H/W 4-6 to 4-10



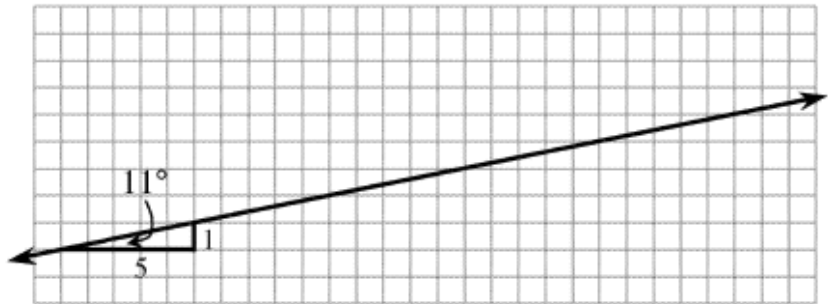
4-2 PATTERNS IN SLOPE TRIANGLES

In order to find an angle (such as the angle at which the Leaning Tower of Pisa leans), you need to **investigate** the relationship between the angles and the sides of a right triangle. You will start by studying slope triangles. Obtain the Lesson 4.1.1 Resource Pages (two in all) from your teacher and find the graph shown below. Notice that one slope triangle has been drawn for you. **Note:** For the next several lessons angle measures will be rounded to the nearest degree.



4-2 a.

Draw three new slope triangles on the line. Each should be a different size. Label each triangle with as much information as you can, such as its horizontal and vertical lengths and its angle measures.



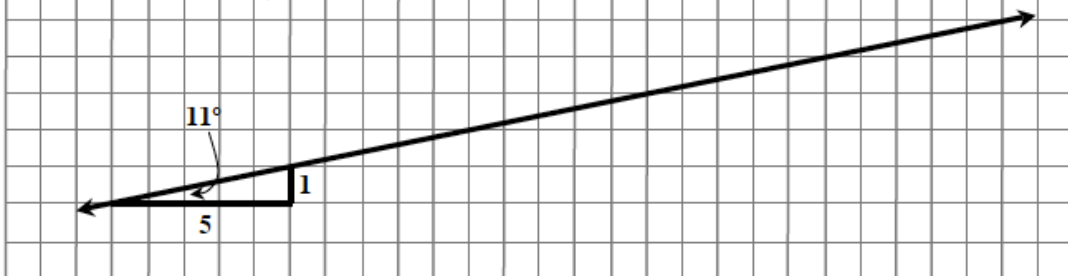
4-2 What do these triangles have in common?
Are they similar triangles?



4-2

Write the slope ratio of each triangle.

What do you notice?



4-3

Draw a similar triangle with a $\Delta y = 6$.

What is the Δx ?

If the Δx is 40 what is the Δy ?

4-3 Draw a line with a different slope on the graph.

If the Δy of this triangle is 6 what is the Δx ?

Is it the same or different than before?

Why?

4-4 Think about the different triangles on the same line.

Do they all have the same slope ratio?

Why?

Use a protractor to measure the angle of the angle of elevation inside the triangle with the $2/5$ slope.

To the nearest whole angle: _____

What can you say about the slope of any line with this angle of elevation.

Draw a line with an angle of elevation of 18°
What is its slope ratio?

Draw a line with an angle of elevation of 45°
What is its slope ratio?

True or False

1. All slope triangles have a ratio of $1/5$.
2. If the slope ratio is $1/5$, the the slope angle is about 11° .
3. If the line has an 11° slope angle then its slope ratio is about $1/5$.
4. Different lines will have different slope angles and different slope ratios.

Fin

