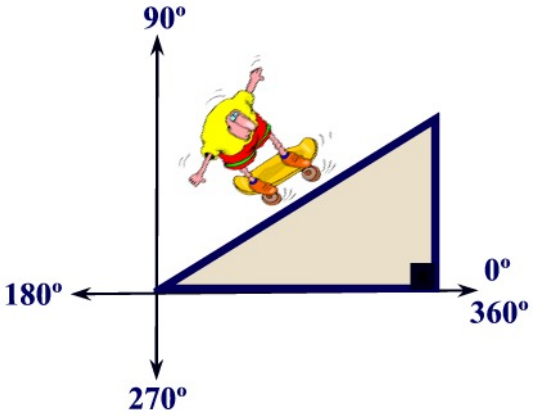
Name

The Skateboarding Triangle

(Round answers to the *nearest tenth* of a foot if needed.)

Herman has taken up the sport of skateboarding and has built a ramp in his driveway. The triangular ramp reaches a maximum height of three feet over a horizontal distance of six feet.



1. Label the diagram at the left showing the maximum height and horizontal length of the ramp.

2. Find the length of the skateboarding surface of Herman's ramp.

3. Find the angle of inclination of the ramp.

4. If Herman builds another ramp and increases the angle of inclination by 5º but keeps the maximum height at three feet, will the length of the skateboarding surface increase or decrease? Find the amount of increase or decrease in this length.

5. After watching Herman fall several times, his father tells him that he must make the original ramp safer. His father suggests that he either decrease the height of the original ramp by one foot, or increase the horizontal distance of the original ramp by two feet.

a. State the angle of inclination of each of these new ramps. Which ramp has the smallest angle of inclination?

b. State the length of each skateboarding surface of these new ramps. Which ramp has the least change in the length of the skateboarding surface when compared to Herman's original ramp?

c. Which ramp do you think Herman will prefer to build and why?