| 1 | To reach Averell's hat, Lucky Luke has to tilt his pistol with precision. We assume that both cowboys are standing perpendicular to the ground.

Averell's height: 7 feet (*i. e.* 2.13 m)
Distance from ground to pistol: PS = 1 m
Distance from gun to Averell: PA = 6 m
Triangle PAC is right-angled at A.

Calculates the angle of inclination ∠APC formed by the ball's trajectory and the horizontal. Round the result to the nearest degree.

| 3 | The slope of a road is obtained by calculating the quotient of the elevation gain (*i. e.* the vertical displacement) by the corresponding horizontal displacement. A slope is expressed as a percentage.

In the example above, the road gradient is:

[elevation gain] / [horizontal displacement] = 15 / 120 = 0.125 = 12.5 %.

Rank the following slopes in decreasing order, *i. e.* from steepest to shallowest.

Road leading down from
château des Adhémar,
in Montélimar.

Section of road   elevation gain: 280 m
descending from the Col du   road length: 1.5 km
Grand Colombier pass (Ain)

Section of road descending from
the Alto de l'Angliru (Asturias   horizontal displacement: 146 m
Asturias region, Spain).

| 4 | We want to add a chimney outlet to the sketch of a house.
[the diagram is not full-scale]

- points H, E and A are aligned;
- points C, M and A are aligned;
- [CH] and [EM] are perpendicular to [HA];
- AM = 16;
- MC = 10;
- ∠HAC = 30°.

Calculate EM, HC and HE in order to obtain a beautiful chimney outlet.