Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. A contractor is designing a roof that will have a 6:13 pitch, which means the roof will rise 6 feet for every 13 feet of horizontal distance. Which of the following diagrams would represent a 6:13 roof?

   a.  
   b.  
   c.  
   d.  

Short Answer: Show all your work (Formula, substitute, calculate). Draw a diagram to help you solve the problem. Round to two decimal places except angles (nearest degree)

1. Munir is digging a drainage ditch to prevent water from puddling under his tent. He digs a straight trench that is 2.5 feet long and drops 7 inches from the level of his tent. What is the angle formed by this ditch?

Answer: _____________________________
2. To assist fish in returning to spawning sites up gentle slopes, a rough artificial stream can be built instead of a fish ladder. To cross a dam which is 6 feet high, an artificial stream covers a run of 58 feet. What is the length of the artificial stream? What is the slope of this artificial stream be? What is the angle of elevation of this artificial stream?

Length: _______________________

Slope: _______________________

Angle of Elevation: _______________________

3. A wheelchair ramp rises 5 feet over a distance of 13 feet. What is the slope of this ramp?

Answer: _______________________

4. What is the percent grade of a hill that rises to an elevation of 1450 m with a run of 2787 m?

Answer: _______________________

5. What is the percent grade of a hill that rises to an elevation of 1.5 km with a run of 12 km?

Answer: _______________________
6. What is the percent grade of a hill that rises to an elevation of 1200 m with a run of 15 km?

Answer:__________________________

7. A skateboard rail rises 3 feet over a run of 7 feet. What is the length of the rail? What is the angle of elevation of the rail?

Length:__________________________

Angle of Elevation:____________________

8. What is the slope of a mountain with a 14% grade?

Answer:__________________________

9. The slope of a ramp leading into a grocery store is 3:16. What is the angle of elevation of the ramp?

Answer:__________________________
10. The slope of a bike jump is 2.1 and it rises 5 feet. What is the horizontal distance covered by this jump?

Answer: 

11. A ramp has a rise of 265 cm over a run of 5.23 m. What is the slope of this ramp? What is the angle of elevation of this ramp? What is the length of this ramp?

Slope: 

Length: 

Angle of elevation: 

12. A ladder on the West Coast Trail hike on Vancouver Island, BC, has a slope of 12 over a run of 3 m. What is the vertical distance covered by the ladder?

Answer: 

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13. A luggage belt at the Calgary International Airport begins at ground level on the tarmac and must rise to the level of the baggage claim area at 17 m above ground.

If the slope of the belt is greater than 1.2, some luggage will slide backwards down the belt. At the maximum slope of the belt, what would be the run distance?

Answer: _______________________

14. A jump being built for a snowboard competition is planned to reach a height of 22 ft and have a slope of 6.5. What horizontal length of the snowboard run must be set aside to build the jump?

Length: _______________________

15. What is the slope of this triangle?
Problem

1. John is planning to book a roofing company to re-shingle his cottage, but he needs to tell them the pitch of his roof. His triangular roof is 32 feet wide and rises 9 feet.

   ![Diagram of a triangular roof with dimensions 32 ft wide and 9 ft rise]

   a. What is the pitch of John’s roof?

      Pitch: _______________________

   b. How many feet does John’s roof rise for every 8 feet of horizontal distance?

      Answer: ______________________