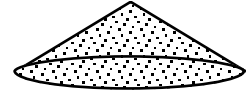
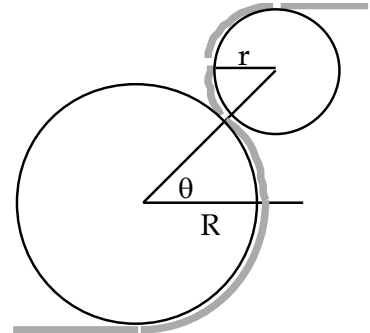


Answers must be clearly **legible**, **simplified** and **boxed** or **circled**. Unless otherwise stated write answer as an **exact** integer or rational or use **two** decimal accuracy. **Units** required.

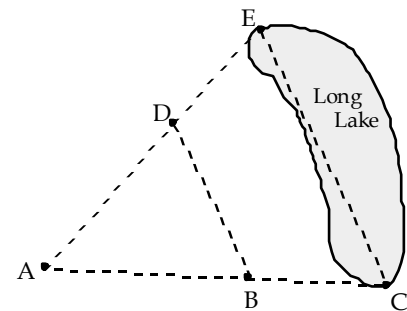
- 1) Find the volume of the conical pile of gravel with a 82 ft diameter and 28 ft high. Round answer to the nearest cu-ft.



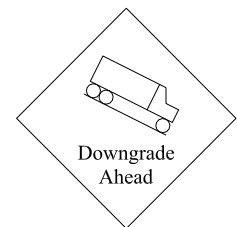
- 2) Find the length of contact given $R = 9''$, $r = 5''$ and $\theta = 42^\circ$.



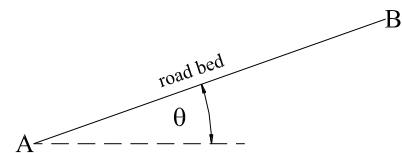
- 3) Given: $DB \parallel EC$. Find the length of the lake, EC .
 $AC = 4,500$ ft, $BC = 1,600$ ft, $DB = 1,800$ ft.
 Round answer to the nearest ft.



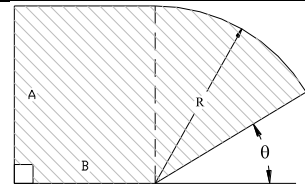
- 4) Find the elevation change if the downgrade is 8% for 8 miles.
 Round answer to the nearest ft.



- 5) Find θ as a % grade given:
 $A=2,120$ ft elev. $B=3,354$ ft elev. $\overline{AB}=9,432$ ft.
 Round answer to the nearest hundredth percent

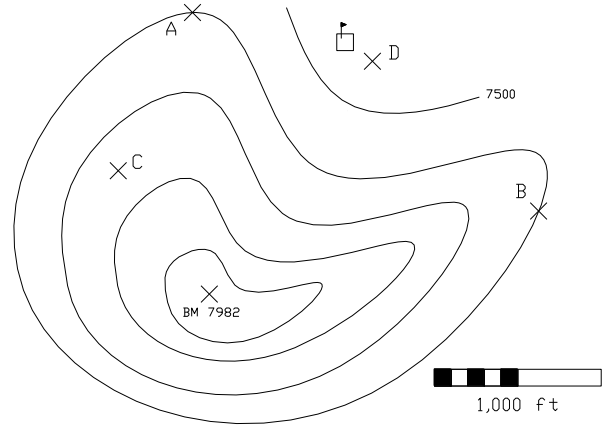


6) Find the shaded area given: $A=140$ ft. $B=88$ ft. $\theta = 20^\circ$.

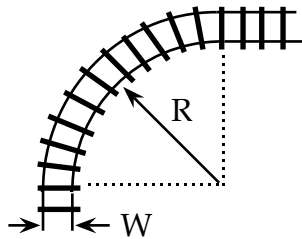


7) Find the average slope between B and the Summit BM (7,982 ft) as a % grade.
Round answer to the nearest whole percent

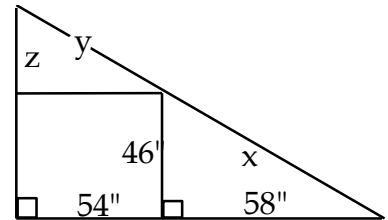
Use the map's scale with 100 ft contour intervals.



8) Find the difference in the length of the two rails given: $W = 7$ ft and $R = 140$ ft.



9) Find x, y, z



10) Find the volume of the traffic divider in cu-ft:

