1. Explain why the area of a circle with radius $r$ can be found by $\mathrm{A}=\pi * r^{2}$. You may use diagrams to accompany your explanation.
2. Explain why the volume of a cone with radius $r$ and height $h$ can be found by $\mathrm{V}=\frac{1}{3} * \pi * r^{2} * h$ You may use diagrams to accompany your explanation.

GMD-3a
3. A silo is being used to store excess grain. It is shaped as shown, including a cone. The structure is 60 feet tall in total, 30 feet wide at its base, and the cylindrical portion is 45 feet tall. To the nearest whole number, find the volume of the silo. Include units in your answer.


MG-1a
4. Organizers are preparing water for an upcoming race. Each water cooler is a 2 -foot tall cylinder with a 10 -inch diameter. Water is distributed in cone-shaped cups 5 inches tall with a diameter of 4 inches. There are 300 runners and each runner is given 2 drinks. Approximately how many coolers are needed? Show the calculations that lead to your conclusion.

## GPE-B2


5. Find the perimeter of $\triangle A B C$ to the nearest tenth.
6. Find the area of $\triangle A B C$

