

Reference Sheet A

2013 National Agricultural Technology & Mechanical Systems m Examination

Information: Slope of Roof = Rise of the Roof $\div$ Run of the Roof (also referred as Rise / Run)

1' = 1 foot 1" = 1 inch

Area of Rectangle = Length $\times$ Width

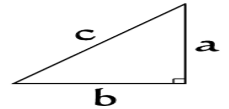
Area of Triangle = $\frac{1}{2}$ (Base Width $\times$ Height)

Pythagorean Equation = $a^2 + b^2 = c^2$

Where a , b , & c represent the lengths of three sides of a right triangle.

Volume of Rectangular Shape (Prism) = Base Width $\times$ Height $\times$ Length

Volume of Triangular Shape (Prism) = $\frac{1}{2}$ (Base Width $\times$ Height $\times$ Length)



These two diagrams are used with exam questions 18, 19, and 20. The dark lines indicate the outline of the building and the light lines and values indicate the dimensions of the building's walls and roof. Diagram 1 shows the outside measurements of the building's walls, including length, width, and height. Diagram 2 shows the horizontal and vertical dimension of the roof. The roof does not extend beyond the walls of the building.

Reference Sheet A

Diagram 1_A:

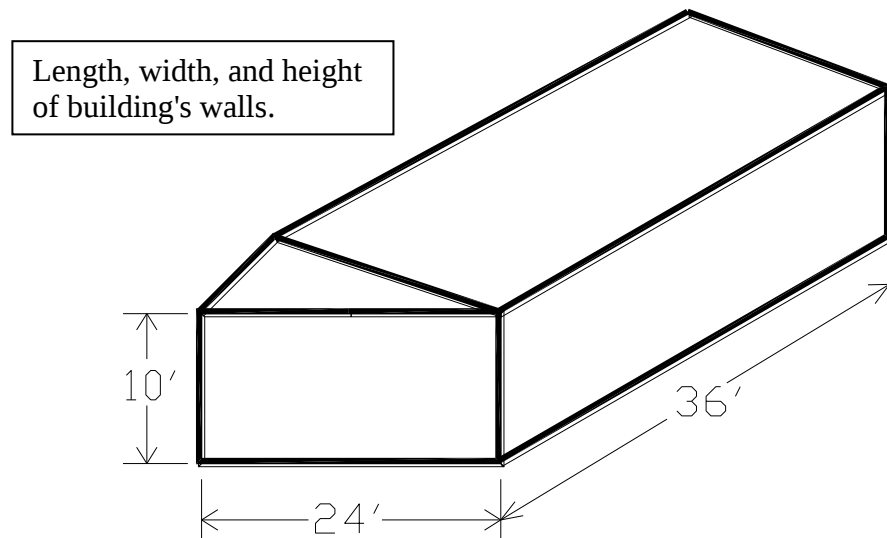
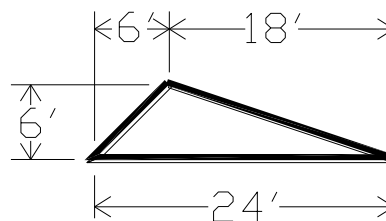


Diagram 2_A:



Horizontal and vertical measurements of the building's roof.

Reference Sheet B

2013 National Agricultural Technology & Mechanical Systems Examination

Information:

$$\text{Area of Triangle} = \frac{1}{2} (\text{Base Width} \times \text{Height})$$

$$\text{Area of Rectangle} = \text{Length} \times \text{Width}$$

$$\text{Area of a Circle} = \pi \times (\text{radius})^2 \quad \pi = 3.14$$

$$1 \text{ acre} = 43,560 \text{ square feet}$$

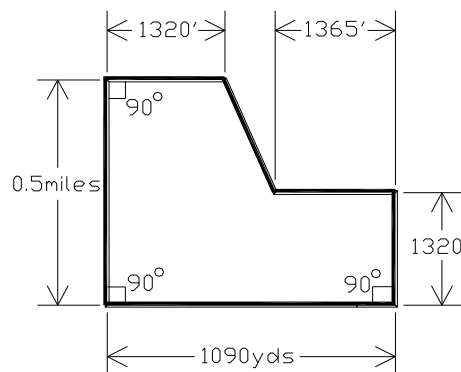
$$1 \text{ mile} = 5,280 \text{ feet}$$

$$1 \text{ yard} = 3 \text{ feet}$$

$$1 \text{ section of land} = 640 \text{ acres}$$

These four diagrams are used with exam questions 23, 24, and 25 and depict the three possible locations for the installation of a center pivot irrigation system on an irregularly shaped piece of farmland. The dark lines indicate the fenced boundary of the farmland. Light lines and values in diagram 1 indicates the dimensions (feet, miles, and yards) of the fenced boundary. Light lines in diagrams 2, 3, & 4 indicate the three possible locations (+) for a center pivot to be installed and the circular portion (part of a circle in degrees) of the farmland in diagrams 2 & 3 that would NOT be irrigated from each location.

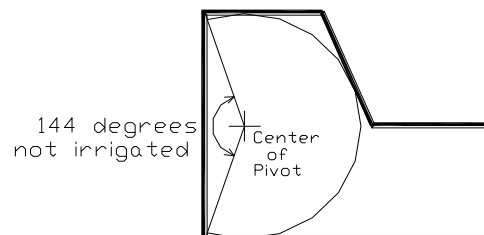
Diagram 1_B:



Diagrams 1, 2, 3, and 4 depict the same irregularly shaped piece of farmland.

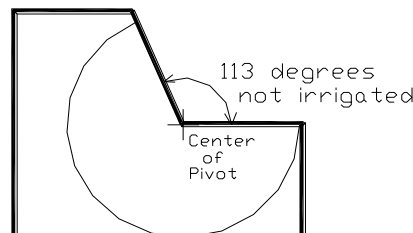
Diagram 1 shows the dimensions of the fenced boundary along the land's perimeter.

Diagram 2_B:



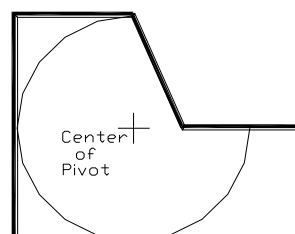
+ Indicates the three possible locations in diagrams 2, 3, & 4 where the center of a center pivot irrigation system can be installed.

Diagram 3_B:



The degree values in diagrams 2 and 3 show the portion of a complete circle (360 degrees) that would NOT be irrigated because of the fence line.

Diagram 4_B:



The center of the center pivot in diagram 4 is 1320 feet from the 0.5 mile fence line and 1320 feet from the 1090-yard fence line.