

1. An NCAA Football field has a playing area that is 120 yards from end zone back edge to opposite end zone back edge. The width of the field between the side lines is 160 feet.

(1) a. If 1.00 inch equals 2.54 cm, calculate the area of an NCAA football field in  $m^2$ .

$$A = (120 \text{ yds}) (160 \text{ ft}) \left( \frac{3 \text{ ft}}{\text{yd}} \right) \left( \frac{12 \text{ in}}{\text{ft}} \right)^2 \left( \frac{2.54 \text{ cm}}{\text{in}} \right)^2 \left( \frac{1 \text{ m}}{100 \text{ cm}} \right)^2$$

$$= \boxed{5350 \text{ m}^2}$$

(3) b. If 1.00 acre equals 43560  $\text{ft}^2$ , calculate the area of an NCAA football field in acres.

$$A = (120 \text{ yds}) (160 \text{ ft}) \left( \frac{3 \text{ ft}}{\text{yd}} \right) \left( \frac{1 \text{ ACRE}}{43560 \text{ ft}^2} \right) = \boxed{1.32 \text{ ACRE}}$$

2. An object moves along the x axis according to the equation  $x = 16t^2 + 2t + 5$ . If x has units of meters and t has units of seconds,

(1) a. What are the units of the coefficient 16?

$$16 \text{ m/s}^2$$

(1) b. What are the units of the coefficient 2?

$$2 \text{ m/s}$$

(1) c. What are the units of the coefficient 5?

$$5 \text{ m}$$