

KEY

Quiz #1A

Clearly indicate (with a box) your answers to the following questions. SHOW ALL WORK.

1. Convert 35 miles/hour into meters/sec.

$$\frac{35 \text{ miles}}{\text{hr}} \cdot \frac{1609 \text{ m}}{1 \text{ mi}} \cdot \frac{1 \text{ hr}}{3600 \text{ s}} = \boxed{16 \text{ m/s}}$$

2. A room measures 17 feet x 12 feet.

- How many square meters is the floor area?
- If the room is 11 feet high, how many cubic meters is the volume of the room?

a)

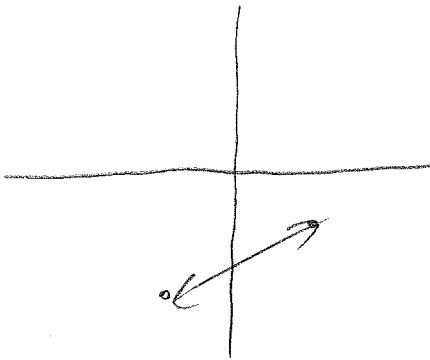
$$17 * 12 = 204 \text{ ft}^2 \cdot \frac{1 \text{ m}^2}{3.281^2 \text{ ft}^2} = \boxed{19 \text{ m}^2}$$

b)

$$17 * 12 * 11 = 2244 \cdot \frac{1 \text{ m}^3}{3.281^3 \text{ ft}^3} = \boxed{64 \text{ m}^3}$$

1

3. What is the distance between the coordinates (3.0, -2.0) and (-2.0, -5.0)?

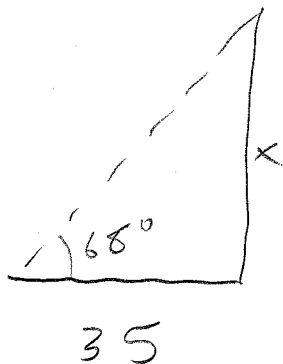


$$\Delta x = 3 - (-2) = 5$$

$$\Delta y = -2 - (-5) = 3$$

$$d = \sqrt{5^2 + 3^2} = \boxed{5.8 \text{ m}}$$

4. Standing 35 feet away from the base of a building, a surveyor measures the angular height of the building to be  $68^\circ$ . What is the height of the building, in meters?



$$\tan 68 = \frac{x}{35}$$

$$x = 35 \tan 68 = \overset{86.6}{\cancel{150}} \text{ ft}$$

$$= \boxed{26 \text{ m}}$$

26 m