

* The following formula gives the distance to the horizon when you are "h" feet up in the air. "h" is measured in feet and the distance "D" is in miles.

$$* D = \sqrt{2h}$$

* How far can you see if you are 10 feet up in the air? (h = 10)

$$D = \sqrt{2(10)} = \sqrt{20} = \sqrt{4 \cdot 5} = 2\sqrt{5} \text{ mi exact}$$

$$\begin{aligned} 4(\sqrt{16} = 4) \\ \sqrt{20} \approx 4.5 \\ 5(\sqrt{25} = 5) \end{aligned}$$

$$D \approx 4.5 \text{ mi} \\ (\text{estimate})$$

* how high up would you need to be to see 15 miles? (find h)

$$D = \sqrt{2h}$$

→ $15 = \sqrt{2h}$

$$(15) 15 = \sqrt{2h} (\sqrt{2h})$$

$$15^2 = (\sqrt{2h})^2$$

$$\frac{225}{2} = \frac{2h}{2}$$

$$112.5 = h$$

$$h = 112.5 \text{ feet}$$

is squaring both sides the same as multiplying both sides by the same amount? YES

$$\begin{array}{r} 15 \\ \times 15 \\ \hline 1575 \\ \hline 225 \end{array}$$