The Weekly Rigor

No. 243

"A mathematician is a machine for turning coffee into theorems."

February 16, 2019

8 Problems in Solving Right Triangles (Part 2 of 4)

(Part 2)

SELECTED SOLUTIONS

1.



(a)
$$\cos(\theta) = \frac{1.5}{9.0} \implies \theta = \cos^{-1}\left(\frac{1.5}{9.0}\right) = 80^{\circ}.$$

(b) $1.5^2 + y^2 = 9.0^2 \implies y^2 = 9.0^2 - 1.5^2 = 78.75 \implies y = 8.9$ m.

3.



(a)
$$\sin(60^\circ) = \frac{y}{18} \implies 18\sin(60^\circ) = y \implies y = 15.59 \text{ ft.}$$

(b) $\cos(60^\circ) = \frac{x}{18} \implies 18\cos(60^\circ) = x \implies x = 9.00 \text{ ft.}$

5.



 $\sin(58^\circ) = \frac{y}{500} \implies 500\sin(58^\circ) = y \implies y = 424 \text{ ft.}$

"Only he who never plays, never loses."

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