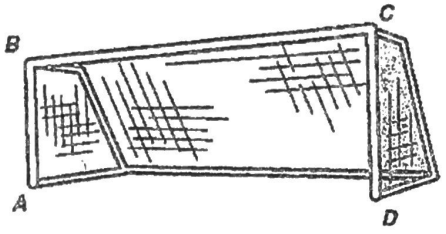
Problem Solving Key

Use the diagram for Exercises 1 and 2.

The soccer goalposts determine rectangle *ABCD*.



1. The distance between goalposts, *BC*, is three times the distance from the top of the goalpost to the ground. If the perimeter of *ABCD* is $21\frac{1}{3}$ yards, what is the length of $\overline{BC}$?

x = 2.67

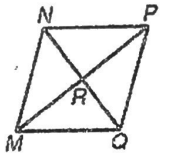
8.01

2. The distance from *B* to *D* is approximately $(x + 10)$ feet, and the distance from *A* to *C* is approximately $(2x - 5.3)$ feet. What is the approximate distance from *A* to *C*?

x = 15.3

25.3

3. *MNPQ* is a rhombus. The measure of $\angle MRQ$ is $(13t - 1)°$, and the measure of $\angle PQR$ is $(7t + 4)°$. What is the measure of $\angle PQM$?

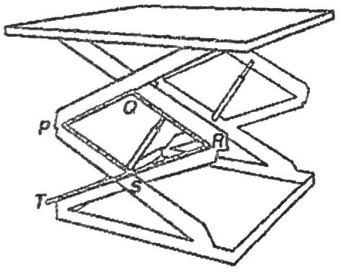


t = 7

106°

4. The *scissor lift* forms rhombus *PQRS* with $PQ = (7b - 5)$ meters and $QR = (2b - 0.5)$ meters. If *S* is the midpoint of $\overline{RT}$, what is the length of $\overline{RT}$?

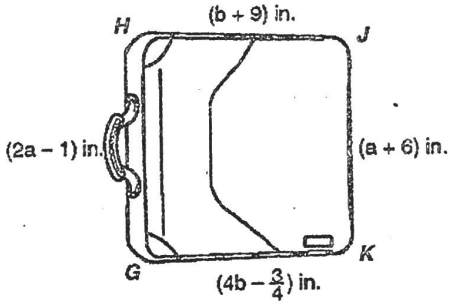
b = .9



2.6

5. The diagram shows the lid of a rectangular case that holds 80 CDs. What are the dimensions of the case?

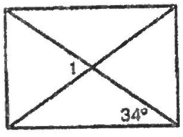
a = 7
b = 3.25



13 by 12.25

Choose the best answer.

6. What is the measure of $\angle 1$ in the rectangle?



A 34°
C 90°
(B) 68°
D 146°

7. A square graphed on the coordinate plane has a diagonal with endpoints *E*(2, 3) and *F*(0, −3). What are the coordinates of the endpoints of the other diagonal?

(F) (4, −1) and (−2, 1)
G (4, 0) and (−2, 1)
H (4, −1) and (−3, 1)
J (3, −1) and (−2, 1)

* distance Formula