

1. Michael and his friends are plotting a course for a race. They decided to make the course in the shape of a triangle PQR . Beginning at P , participants run 1.4 miles to Q , then from Q to R , and finally 2.6 miles from R back to P . Angle QPR measures 38.5°
- a Find, to the *nearest tenth of a mile*, the total number of miles for the entire race.
- b Find, to the *nearest tenth of a square mile*, the area of triangle PQR .

1.

2. On January 1, 1999, the price of gasoline was \$1.39 per gallon. If the price of gasoline increased by 0.5% per month, what was the cost of one gallon of gasoline, to the *nearest cent*, on January 1 one year later?

2.

3. If an arc of 60° on circle A has the same length as an arc of 45° on circle B , what is the ratio of the area of circle B to the area of circle A ?

3.

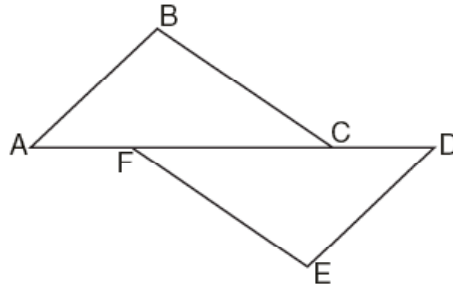
4. The scores on a 100-point exam are normally distributed with a mean of 80 and a standard deviation of 6. A student's score places him between the 69th and 70th percentile. Which of the following best represents his score?

- (1) 66 (3) 84
(2) 81 (4) 86

4.

5. Complete the partial proof below for the accompanying diagram by providing reasons for steps 3, 6, 8, and 9.

Given: \overline{AFCD}
 $\overline{AB} \perp \overline{BC}$
 $\overline{DE} \perp \overline{EF}$
 $\overline{BC} \parallel \overline{FE}$
 $\overline{AB} \cong \overline{DE}$



Prove: $\overline{AC} \cong \overline{FD}$

Statements	Reasons
1 \overline{AFCD}	1 Given
2 $\overline{AB} \perp \overline{BC}$, $\overline{DE} \perp \overline{EF}$	2 Given
3 $\angle B$ and $\angle E$ are right angles.	3 _____ _____
4 $\angle B \cong \angle E$	4 All right angles are congruent.
5 $\overline{BC} \parallel \overline{FE}$	5 Given
6 $\angle BCA \cong \angle EFD$	6 _____ _____
7 $\overline{AB} \cong \overline{DE}$	7 Given
8 $\triangle ABC \cong \triangle DEF$	8 _____ _____
9 $\overline{AC} \cong \overline{FD}$	9 _____ _____

6. Show the expansion of $(3 - 2i)^5$. Give the final answer in simplest terms.

6.