# 수학 1(BT) 중간 고사 예시문제와 풀이

1. Homing pigeons avoid flying over large bodies of water, preferring to fly around them instead.(One possible explanation is the fact that extra energy is required to fly over water because air pressure drops over water in the daytime.) Assume that a pigeon released from a boat 3 mi from the shore of a lake (point B) flies first to point P on the shore and then along the straight edge of the lake to reach its home at L. If L is 8 mi from point A, the point on the shore closest to the boat, and if a pigeon needs 2 as much energy per mile to fly over water as over land, find the location of point P, which minimizes energy used.

sol) See the solution at **Example 5 (233 page)** in the textbook.
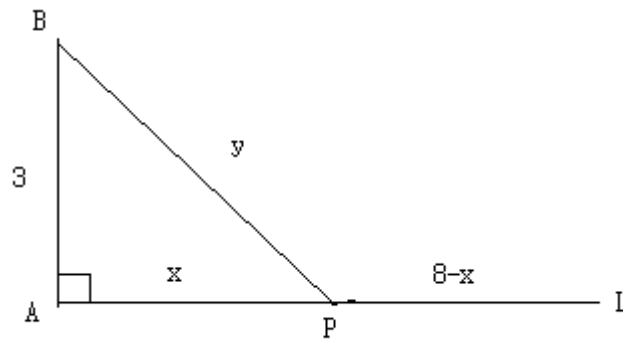
$\therefore$ The location of point P using minimal energy is $\sqrt{3} \, (\approx 1.73)$ mile away from A.

2. Graph of the rational function $f(x) = \dfrac{x^3}{x^2 - 1}$.

sol)