

Name _____ Student number _____ Quiz section: _____

Please **show your work** for full credit.

1. A drinking fountain is located inside a parabolic-shaped field as shown. The parabola is given by the equation $y = 2x^2 - 1$, where x and y measure the distance (in km) east and north, respectively, from the fountain. A thirsty runner, starting at 1 km east and 1 km south of the fountain, runs directly towards the fountain at a constant speed of $\frac{1}{3}$ km/minute.

- (a) Where does the runner enter the field?
- (b) When does the runner enter the field?

2. The stock price y (in \$ per share) of the software company BillySoft during the first six months of 1997 is graphed below:

- (a) Is the stock price a function of time t ? If yes, what is the range of this function?
- (b) When is the stock price decreasing? When is it at maximum value?
- (c) Find a formula for the stock price y in terms of t , for $2 \leq t \leq 3$.
- (d) Over the time interval $2 \leq t \leq 3$, when is the stock price equal to \$23 per share?
- (e) Let $f(t)$ denote the formula for y in terms of t . What is $f(2.6)$?