**Lab 1 for Section 6.10** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Use good notation and show appropriate work. Write solutions to application problems in* ***complete sentences***.

1. Indicate which graph matches the statement.

 (a) Someone riding a bicycle must travel over a large hill at the beginning of a bike race. Explain.

distance distance distance

from from from

starting starting starting

line line line

 time time time

(b) An observer is standing at the intersection of a figure-eight racetrack watching a single car traveling on the track. Explain.

distance distance distance

of car of car of car

from from from

observer observer observer

 time time time

2. Sketch a reasonable graph for each.

 (a) The distance from the ground as a function (b) The distance off the ground as a function of time
 of time of a person riding on a Ferris wheel. of a child swinging on a swing.

(c) The distance a train is from a platform as a function of time when the train pulls into a station and lets off its passengers onto the platform.

3. Determine whether each of the following sets of ordered pairs are functions. If it is a function give the domain and range as a set.

 (a) {(2, 1), (2, 2), (2, 3)} (b) {(1, 2), (2, 2), (3, 2)} (c) {(2, –1), (3, 5), (4, 7)}

4. Find the following for the graph at right:

(a)  *f* (2) =

(b) Domain of *f*

(c) Range of *f*

(d) *y*-intercept

(e) *x*-intercept(s)

5. Pat runs a small company that duplicates DVD’s. The daily cost for duplicating *x* DVD’s is the daily revenue is *R*(*x*) = 1.7*x*. The graphs of the two lines are shown.



(a) Pat will “break even” when his cost and his revenue are equal, How many DVD’s does he need to duplicate to break even?

(b) Interpret the slope and *y*-intercept for the cost function.

(c) Interpret the slope and *y*-intercept for the revenue function.

6. Complete the tables and then graph the functions.

|  |  |  |
| --- | --- | --- |
| *x* | *f* (*x*) *= x* 2 | *g*(*x*) = 2*x* |
| –3 |  |  |
| –2 |  |  |
| –1 |  |  |
|  0 |  |  |
|  1 |  |  |
|  2 |  |  |
|  3 |  |  |

**** (a)

****

|  |  |  |
| --- | --- | --- |
| *x* | *f* (*x*) *= x* 3 | *g*(*x*) = 3*x* |
| –2 |  |  |
| –1 |  |  |
|  0 |  |  |
|  1 |  |  |
|  2 |  |  |

****

 (b)