***Position vs. Time Practice Worksheet*** 12/12/14 **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_ Hour \_\_**

**Stuck on a track!**



**Graph 1**: Robot moving back and forth along a straight line.

1. At what position is the robot located at the following times?

a) 7 s: \_\_\_\_\_\_ b) 13 s: \_\_\_\_\_\_

c) 15 s: \_\_\_\_\_\_ d) 23 s: \_\_\_\_\_\_

2. What is the robot’s displacement between 3 and 15 seconds?

3. What is the robot’s displacement between 0 and 21 seconds?

4. What total distance was traveled between 0 and 21 seconds? Include back and forth!

5. Calculate the person’s average speed during each of these time periods:

a) 0 to 10 s b) 10 to 12 s c) 15 to 23 s d) 0 to 21 s

**Graph 2:**

Position (km)

time (minutes)

20

4

8

12

16

20

50

50

2

10

18

25

6

0

14

0

Rocket cart on a track.

|  |  |
| --- | --- |
| time (min) | Pos.  (km) |
| 0 | 20 |
| 4 | 16 |
| 9 | 16 |
| 11 | 40 |
| 13 | 38 |
| 15 | 32 |
| 18 | 15 |
| 20 | 0 |

6. Plot the

following

positions:

7. In a couple of sentences, qualitatively (no numbers) describe the motion of the cart.

8. What motion is shown in each of the following graphs? (A sample answer is given for the first problem. Make your answers similar to this one.)

**A.**

position (m)

time (s)

20

10

20

10

0

0

15

-10

5

10

-10

*The object starts at a negative position, moving forward. It passes the zero meter mark, at time 6 seconds. After it reaches the 3 meter mark, at time 8 seconds, it slows down (decelerates.*

position (m)

time (s)

20

10

20

10

0

0

15

-10

5

10

-10

**B**

position (m)

time (s)

20

10

20

10

0

0

15

-10

5

10

-10

**C**

position (m)

time (s)

20

10

20

10

0

0

15

-10

5

10

-10

**D**