

- 1) Calculate the slope including units.
- 2) If you graph is a straight line what does that tell you about the motion of the cart?
- 3) What does the slope determine on this particular graph?

## Review

### Metric System

Convert the following measurements to the indicated units:

#### Real Units

- 1) Convert 16.7 inches to feet 1.39
- 2) Convert 25 yards into feet (there are 3 feet in a yard) 75
- 3) Convert 84 miles to kilometers (there are .6 miles in a kilometer) 140
- 4) Convert 4.75 centimeters to meters .0475
- 5) Convert 48,987 minutes to days 34.019
- 6) Convert .09 miles into inches (There are 36 inches in a yard, and 1760 yards in a mile) 5700

75, 30, 9.33, 1.39, .55, 9000, 5.625, 18, 140, 2.5, .0475, 34.019, 57.4, 6000

1. 100 km/hr = ? miles/hr (mph) 62.13 → 60
2. Convert a speed of 35.8 mi/hr to m/s. 16
3. Convert 0.044 m<sup>3</sup> to cm<sup>3</sup> 44000
4. Convert 5.4 × 10<sup>-6</sup> m<sup>3</sup> to in<sup>3</sup> .32

### Scientific Notation:

1. Write the following numbers in scientific notation:

- |   |  |  |
|---|--|--|
| a) 5 500 000 000<br><span style="font-size: 1.2em; color: red;">5.5 × 10<sup>9</sup></span> | b) 780<br><span style="font-size: 1.2em; color: red;">7.8 × 10<sup>2</sup></span>            | c) 23.010 000<br><span style="font-size: 1.2em; color: red;">2.301 × 10<sup>7</sup></span> |
| d) 0.091<br><span style="font-size: 1.2em; color: red;">9.1 × 10<sup>-2</sup></span>        | e) 0.000003004<br><span style="font-size: 1.2em; color: red;">3.004 × 10<sup>-6</sup></span> |  |

2. Write the following numbers in regular notation:



a)  $5.5 \times 10^{-7} \times 10^3$

*0.00000055*

b)  $7.1 \times 10^{10}$

*71000000000*

c) 1.0

*1000*

3. Compute the following:

a)  $10^3 \times 10^5$   
 $(-5 \times 10^{-5})$

*$10^8$*

b)  $(8.0 \times 10^5)(1.2 \times 10^8)$

*$9.6 \times 10^{13}$*

c)  $(4 \times 10^{-3})$

*$-2.0 \times 10^{-7}$*

d)  $10^3 \div 10^5$   
 $10^8)^2$

*$10^{-2}$*

e)  $4.2 \times 10^{-3} \div 2 \times 10^{-5}$

*$8.4 \times 10^{-8}$*

f)  $(3 \times 10^4)$

*$9 \times 10^{14}$*

Algebra

1. Solve each formula for the variable indicated.

a)  $A = lw$ , "w"

*$w = \frac{A}{l}$*

b)  $A = \frac{1}{2}bh$ , "h"

*$\frac{2A}{b} = h$*

c)  $g = a + w$ , "a"

*$g - w = a$*

d)  $P = s - e$ , "s"

*$pte = s$*

e)  $v = u + at$ , "u"

*$v - at = u$*

f)  $d = v_0t + \frac{1}{2}at^2$ , "a"

*$\frac{d(d - v_0t)}{t^2} = a$*

**Significant Figures Worksheet**

1) Counting sig figs: write down the number of sig figs each piece of data has:

a) 0.0021 m

*2*

b) 200,000 m<sup>3</sup>

*1*

c) 21.200 s

*5*

d) 410 kg

*2*

e) 0.0002 s

*1*

f) 91.0001 m<sup>2</sup>

*6*

2) Multiplication with sig figs:

a)  $92.45 \text{ m} \cdot 1.01 \text{ m} = 93.4$

b)  $0.0024 \text{ N} \cdot 4.24 \text{ s} = .010$

c)  $4000 \text{ kg} \cdot 2.001 \text{ m/s} = 8000$

e)  $0.00698 \text{ m}^2 \cdot 100 \text{ cm} = .7$

f)  $2001 \text{ kg} \cdot 12.6 \text{ m/s} = 25,200$

g)  $610 \text{ N} \cdot 4002 \text{ s} =$

$2400,000$

3) Division with sig figs:

a)  $12 \text{ m} \div 31.2 \text{ s} = 3.8$

b)  $69.4 \text{ kg} \div 38.888 \text{ s} = 1.78$

c)  $0.012 \text{ m}^2 \div 0.0002 \text{ s} =$   
 ~~$0.0000024$~~

d)  $1800 \text{ kg} \div 410 \text{ s} =$

$.000002$

4) Addition and subtraction with sig figs:

a)  $14 \text{ m} + 12.2 \text{ m} = 26$

d)  $69.45 \text{ s} + 19.3 \text{ s} =$

b)  $0.012 \text{ kg} + 1.0046 \text{ kg} - 0.0064 \text{ kg} =$

$1.010$

$88.8$

5) Chain calcs with sig figs: write down the number of sig figs each piece of data has:

a)  ~~$(0.045 \text{ m} + 9.92 \text{ kg}) \div 16.86 \text{ s} =$~~   $10.86 \div 16.86 = .5931$

b)  $(9000 \text{ m} - 4.01 \text{ m}) \cdot 1.002 \text{ m} =$

$9000$

c)  $(0.21 \text{ m} \cdot 6.23 \text{ s}) \cdot 1.002 \text{ m} =$

$1.3 \rightarrow 1.3$

Conversion Activity  
 Conversion MiniLab

Follow instructions and make conversions using dimensional analysis

Station 1

Have one person start at one of the x's and then run outside. They will go to the