Name: Key Date: _____ Period: _____

Graphing Skill #3: Scaling Axes

There are a few important steps involved in correctly scaling an axis:

- STEP 1: Find the range for the variable
  - Range = Largest Value - Smallest Value
- STEP 2: Divide the range by the number of intervals you want (not too many or too few). We don't want all of the data smooshed in only part of the graph; spread it out.
  - After dividing, we may need to round *up* to get a number that is easy to count by. (It is easier to count by 2s instead of 1.9s)
- STEP 3: Use the rounded number to mark off intervals along the axis.
  - The interval must be the same amount each time (count up by the same number).

STEP 1: What is the range of my data? Find the range of the data for each column below.

EX.

Mass (g)
5
11
14
19
26
30
40

Largest #: 40

Smallest #: 5

Range: 35-5 = 35

A)

Students
100
99
88
70
72
64
55

Largest #: 100

Smallest #: 55

Range: 45

B)

Distance (cm)
3
5
6
7
9
10
12

Largest #: 12

Smallest #: 3

Range: 9

C)

Time (s)
0.22
0.51
0.78
1.01
1.23
1.60
1.74

Largest #: 1.74

Smallest #: .22

Range: 1.52

STEP 2: What number do I count by? Assume that our graph has 10 intervals (places to put numbers). If needed, round up to get to a good counting number.

A)	A)	B)	C)
Range = 35	Range = 45	Range = 9	Range = 1.52
# of intervals = 10	# of intervals = 10	# of intervals = 10	# of intervals = 10
$\frac{\text{Range}}{\text{Intervals}} = \frac{35}{10} = 3.5$	$\frac{45}{10} = 4.5$	$\frac{9}{10} = .9$	$\frac{1.52}{10} = .152$
Round to Count = 4	Round to Count = 5	Round to 1	Round to 0.2

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STEP 3: What does my scale look like? Each of the scales for the *dependent* variables has a few missing values on it. Please fill in any missing values.

A)	B)	C)	D)	E)
6	30	3.0	150	24
5	25	2.5	125	20
4	20	2.0	100	16
3	15	1.5	75	12
2	10	1.0	50	8
1	5	0.5	25	4
0	0	0	0	0

Each of the scales for the *independent* variables has a few missing values on it. Please fill in any missing values.

A)	B)
0 3 6 9 12 15 18 21 24 27 30 33	0 .2 .4 .6 .8 1.0 1.2 1.4 1.6 1.8 2.0 2.2

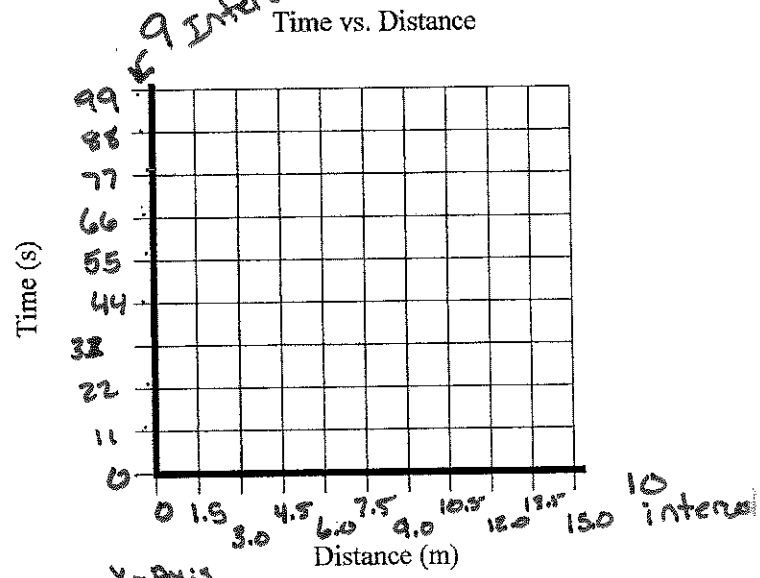
Putting it all together: Please create appropriate scaling for each axis.

Start 0 Low

Distance (m)	Time (s)
10.3	1.5
20.2	2.9
29.8	4.3
40.4	5.8
49.1	7.0
60.9	8.7
70.2	10.0
80.1	11.4
90.6	12.9

High

9 Intervals



Y-Axis

90.6
- 0
Range 90.6

Range / Interval = 90.6 / 9 = 10.1

go to = 11

X-Axis

Range / Interval 12.9 / 10 = 1.29 = 1.5 easier to count

12.9
- 0
12.9 Range