

# AP Physics 1

## Unit 1 TIPERS

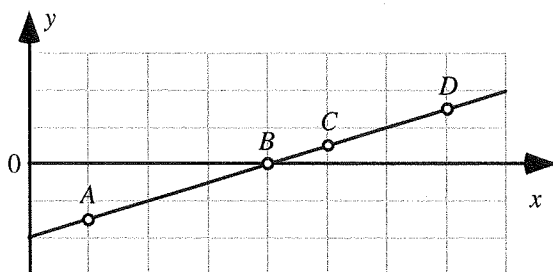
Name: \_\_\_\_\_

Mods: \_\_\_\_\_

### A1 PRELIMINARIES

#### A1-RT01: LINE GRAPH I—SLOPE

Four points are labeled on a line.



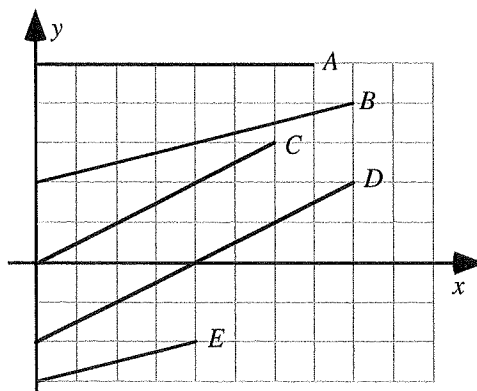
Rank the magnitudes (sizes) of the slopes of the line at the labeled points.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	OR	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4		All	All	Cannot
Greatest			Least		the same	zero	determine

Explain your reasoning.

#### A1-RT02: Y-X GRAPH LINES—SLOPE

Shown are several lines on a graph.



Rank the slopes of the lines in this graph.

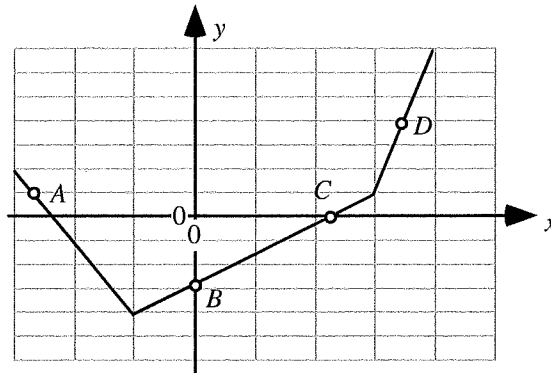
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	OR	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5		All	All	Cannot
Greatest				Least		the same	zero	determine

Explain your reasoning.

**TIPERS**

**A1-RT03: COMPLEX LINE GRAPH—MAGNITUDE OF SLOPE**

Four points are labeled on a graph.



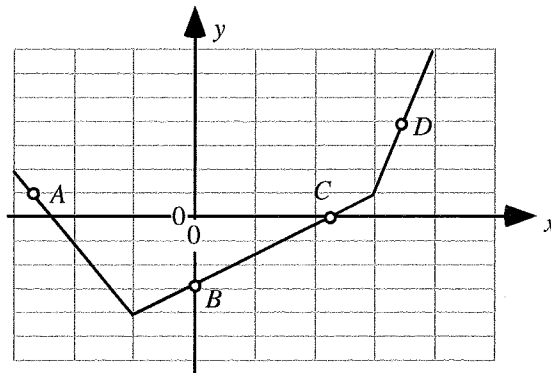
Rank the magnitudes (sizes) of the slopes of the graph at the labeled points.

				OR			
1	2	3	4		All	All	Cannot
Greatest			Least		the same	zero	determine

Explain your reasoning.

**A1-RT04: COMPLEX LINE GRAPH—SLOPE**

Four points are labeled on a graph.



Rank the slopes of the graph at the labeled points.

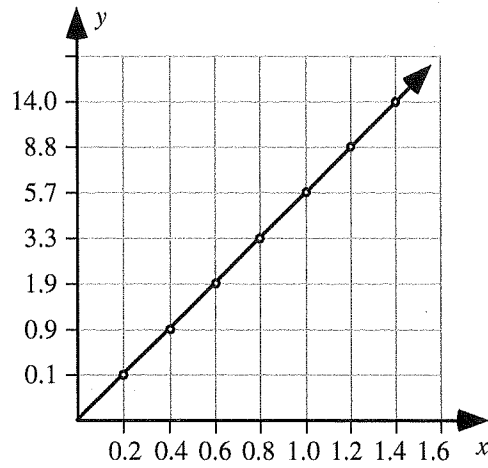
				OR			
1	2	3	4		All	All	Cannot
Greatest			Least		the same	zero	determine

Explain your reasoning.

**A1-WWT09: TWO COLUMNS OF DATA—DATA GRAPH**

A student uses data from a table to make a graph as shown.

$x$	$y$
0.2	0.1
0.4	0.9
0.6	1.9
0.8	3.3
1.0	5.7
1.2	8.8
1.4	14.0

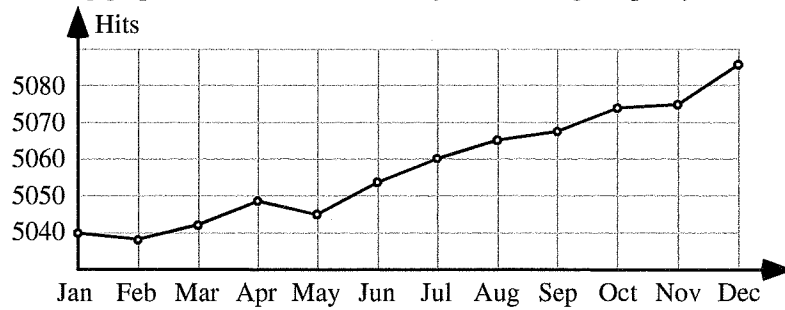


What, if anything, is wrong with this graph? If something is wrong, identify and explain how to correct all errors. If this statement is correct, explain why.

## TIPERS

### A1-WWT10: MONTHLY WEBSITE VISITS GRAPH—INTERPRETATION

A website posts the following graph of the number of monthly visits during the past year.



The website owner makes the following statement about this graph:

*“As you can see, this year our popularity has grown dramatically, and we look forward to continued success.”*

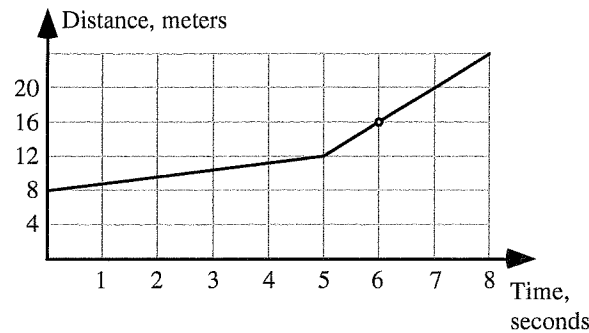
**What, if anything, is wrong with this statement? If something is wrong, identify and explain how to correct all errors. If this statement is correct, explain why.**

### A1-WWT11: CAT MOVING AWAY FROM A DOG GRAPH—CAT SPEED

A cat is moving away from a sleeping dog along a hallway. A graph of the distance of the cat from the dog as a function of time is shown. A student uses the equation rate times time equals distance to calculate the speed of the cat at time 6 seconds:

Rate = distance/time = 16 m/6 s = 2.667 meters per second.

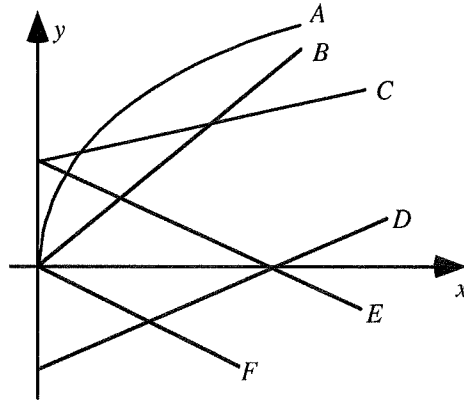
**What, if anything, is wrong with this calculation? If something is wrong, identify and explain how to correct all errors. If this is correct, explain why.**



## TIPERS

### A1-QRT23: STATEMENT ABOUT Y-X GRAPHS—DOUBLING GRAPH

Six  $y$ - versus  $x$ - graphs are shown on a single set of axes.



Which, if any, of these graphs is consistent with the statement “If  $x$  doubles, then  $y$  also doubles?” \_\_\_\_\_

Explain your reasoning.

### A1-SCT24: EQUATION I—SOLUTION

Four students solving a math problem obtain the following equation:

$$4abx = cax + 2b$$

They want to solve for  $x$ , and make the following statements about what to do next:

Aubrie: “There’s nothing we can do until we plug in numbers for  $a$ ,  $b$ , and  $c$ .”

Bayan: “We need to get all the  $x$  terms on one side, so we should subtract  $cax$  from both sides.”

Cherise: “I agree, but first we can simplify. There’s an “ $a$ ” on both sides, and we can cancel them.”

Didier: “I agree that we need to get all the  $x$  terms on one side, but to do that we should divide by  $cax$ .”

With which, if any, of these students do you agree?

Aubrie \_\_\_\_\_ Bayan \_\_\_\_\_ Cherise \_\_\_\_\_ Didier \_\_\_\_\_ None of them \_\_\_\_\_

Explain your reasoning.