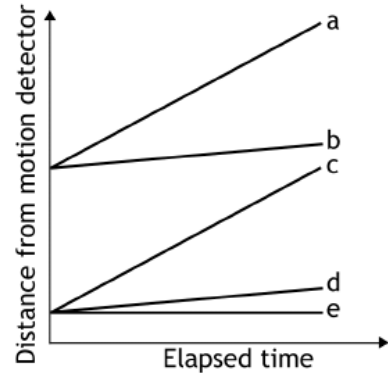


HOMEWORK 7.1

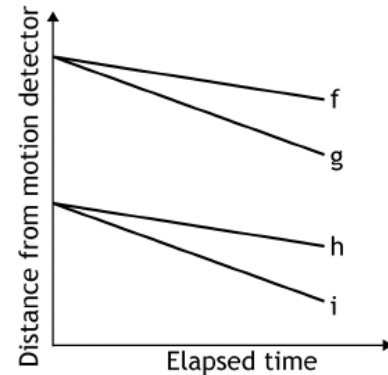
Notes or additional instructions based on whole-class discussion of homework assignment:

Part I: Match each description in questions 1 and 2 with the corresponding graph. Then answer question 3.

1. For each description of the skateboarder’s motion, write the letter of the corresponding graph.
 - a. Terrence started at 2 feet and skated quickly away from the motion detector. _____
 - b. Terrence started at 2 feet and skated slowly away from the motion detector. _____
 - c. Terrence started at 5 feet and skated quickly away from the motion detector. _____
 - d. Terrence started at 2 feet and paused to catch his breath. _____
 - e. Terrence started at 5 feet and skated slowly away from the motion detector. _____



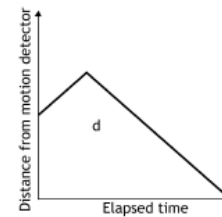
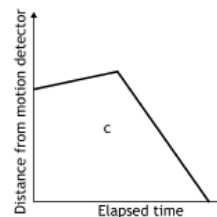
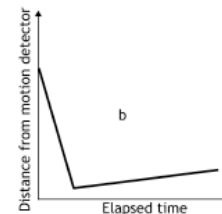
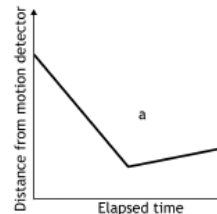
2. For each description of the skateboarder’s motion, write the letter of the corresponding graph.
 - a. Terrence started at 6 feet and skated slowly toward the motion detector. _____
 - b. Terrence started at 6 feet and skated quickly toward the motion detector. _____
 - c. Terrence started at 3 feet and skated quickly toward the motion detector. _____
 - d. Terrence started at 3 feet and skated slowly toward the motion detector. _____



3. Describe your strategy for matching the descriptions and graphs in Part I.

Part II. Match each description with the corresponding graph. Write the letter in the blank.

4. Terrence skated quickly toward the motion detector for 3 seconds and then slowly away from it for 3 seconds. _____
5. Terrence skated slowly away from the motion detector for 3 seconds and then quickly toward it for 3 seconds. _____
6. Terrence skated quickly toward the motion detector for 2 seconds and then slowly away from it for 4 seconds. _____
7. Terrence skated slowly away from the motion detector for 2 seconds and quickly toward it for 4 seconds. _____



Part III. Explain in words:

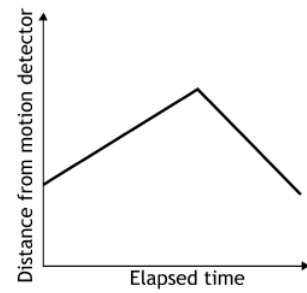
8. José says the graph represents Terrence skating up a hill and then down a hill. What do you say to José?

9. What would a graph look like if Terrence skateboarded quickly?

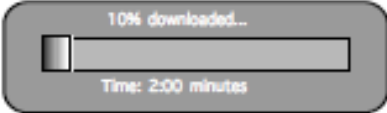
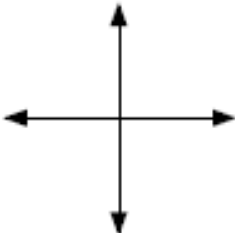
10. What would a graph look like if Terrence skateboarded slowly?

11. What would a graph look like if Terrence skateboarded away from the motion detector?

12. What would a graph look like if Terrence skateboarded toward the motion detector?



STAYING SHARP 7.1

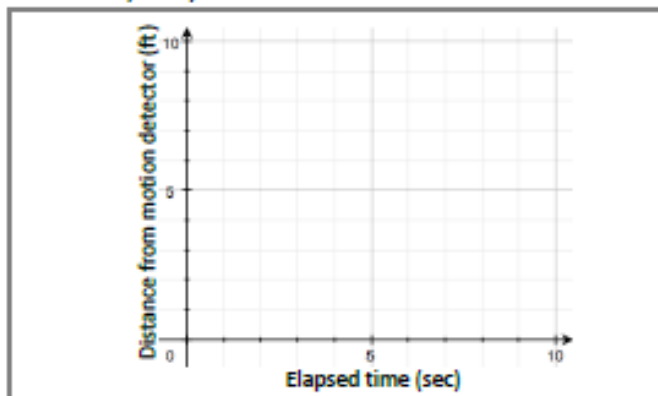
Practicing algebra skills & concepts	<p>1. Complete the following table.</p> <table border="1" data-bbox="256 279 852 682"> <thead> <tr> <th>Directions</th> <th>Example</th> <th>For any number, n</th> </tr> </thead> <tbody> <tr> <td>Choose a number.</td> <td></td> <td>n</td> </tr> <tr> <td>Multiply by 4.</td> <td></td> <td></td> </tr> <tr> <td>Add 3.</td> <td>23</td> <td></td> </tr> </tbody> </table>	Directions	Example	For any number, n	Choose a number.		n	Multiply by 4.			Add 3.	23		<p>2. Simplify:</p> $\frac{9-2}{6-4}$ <p>Answer:</p>
Directions	Example	For any number, n												
Choose a number.		n												
Multiply by 4.														
Add 3.	23													
Preparing for upcoming lessons	<p>3. Teri is downloading a file and the computer shows this image after taking 2 minutes to download. About how long will it take Teri to download the whole file?</p> <p>Answer with supporting work:</p> 	<p>4. If you popped 3 bags of popcorn in 15 minutes, how many bags did you pop per minute?</p> <p>Answer with supporting work:</p>												
Reviewing pre-algebra ideas	<p>5. a. Find the average of 27 and 45.</p> <p>b. Find the average of 10, 18, and 23.</p>	<p>6. Label the quadrants.</p> <p>In which quadrant is each of the points?</p> <p>a. $(-2, 55)$ _____</p> <p>b. $(55, -2)$ _____</p> <p>c. $(-2, -55)$ _____</p> 												

HOMEWORK 7.2

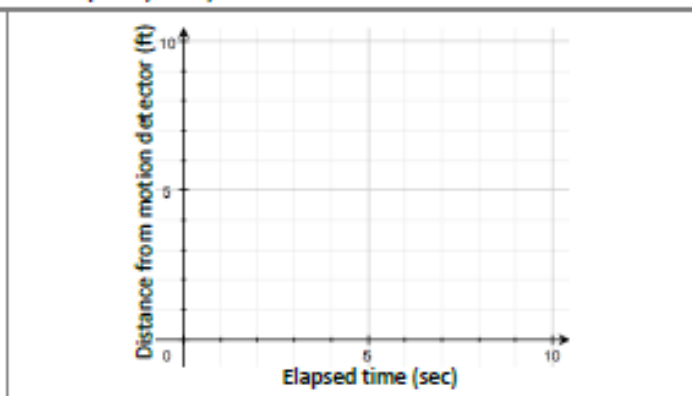
Notes or additional instructions based on whole-class discussion of homework assignment:

1. Sketch a graph (*Elapsed time*, *Distance*) for each description. Keep in mind that you must walk for the full 10 seconds and cannot travel farther than 10 feet from the motion detector.

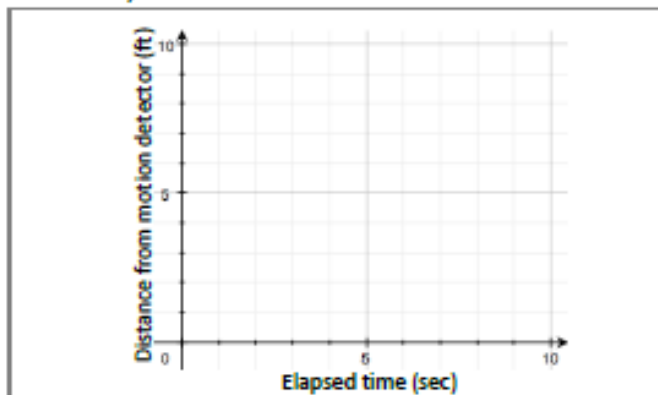
- a. You start 3 feet from the motion detector and walk slowly away from the motion detector.



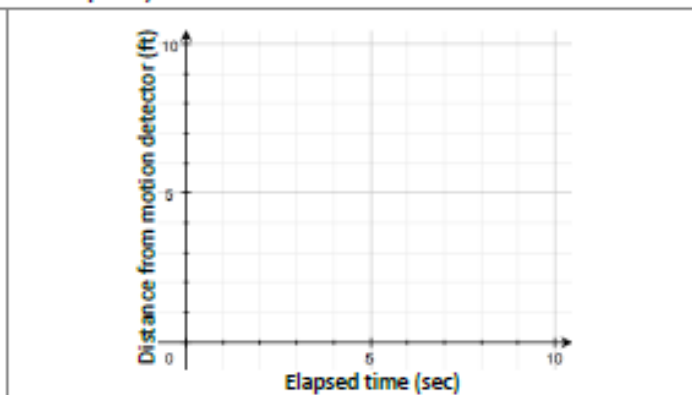
- b. You start 2 feet from the motion detector and walk quickly away from the motion detector.



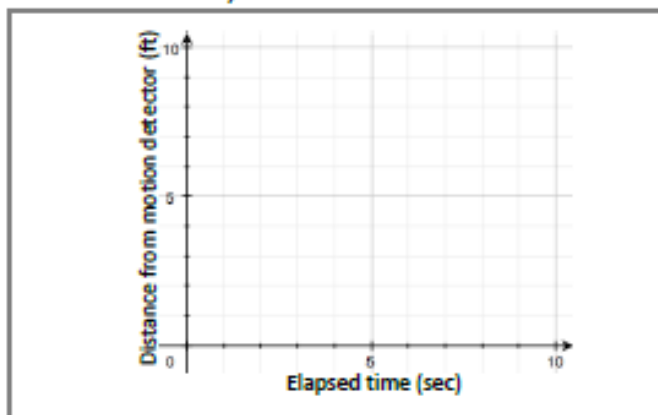
- c. You start 7 feet from the motion detector and walk slowly toward the motion detector.



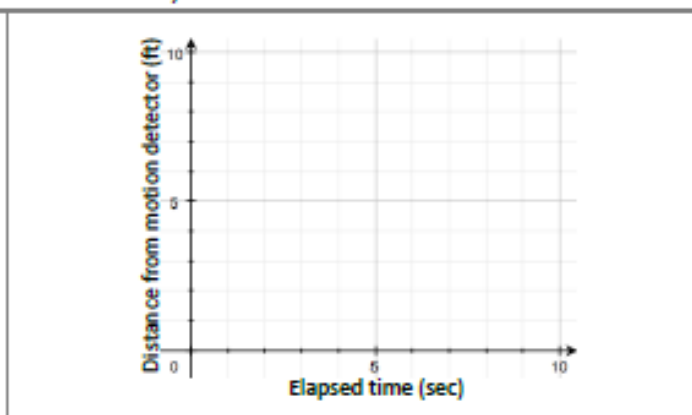
- d. You start 9 feet from the motion detector and walk quickly toward the motion detector.



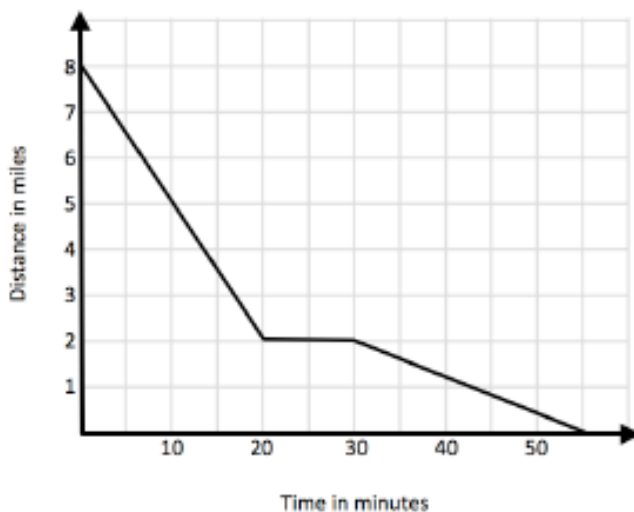
- e. You walk toward the motion detector, stand still, and then walk away from the motion detector.



- f. You stand still, then walk away from the motion detector, and then back toward the motion detector.


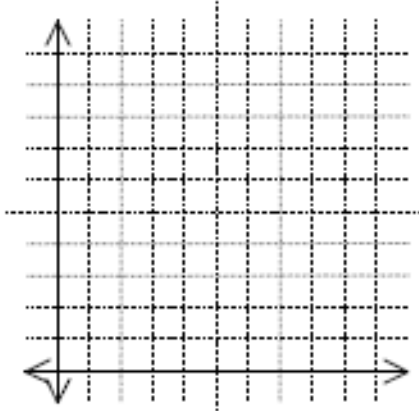


2. Mark is running in a foot race. The graph below shows Mark's distance from the finish line as related to time. Use the graph to answer the following questions.



- How far did Mark run in the race? Explain.
 - How long did it take Mark to finish the race? Explain.
 - Write a story about Mark's race.
 - What is the domain of this situation? What is the range?
3. Think about your performance on the Unit 2 end-of-unit assessment.
- Are you pleased with your performance on the end-of-unit assessment? Circle one: Yes / No
 - Does your performance reflect your understanding of the topics in Unit 2? Circle one: Yes / No
If you answered "No," why do you think this?
 - Based on your answers to parts a and b, what actions might you take during this unit to increase your understanding?

STAYING SHARP 7.2

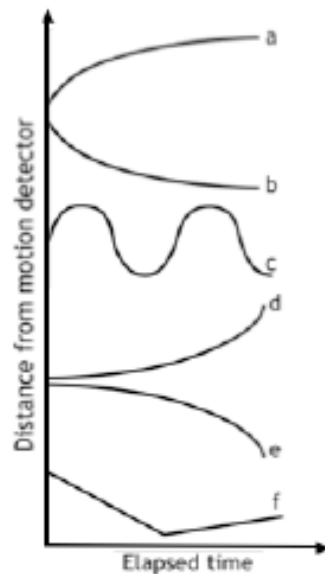
Practicing algebra skills & concepts	<p>1.</p> <p>a. Calculate the following products. Look for a pattern.</p> <p style="margin-left: 40px;">$10 \cdot 9$</p> <p style="margin-left: 40px;">$1 \cdot 9$</p> <p style="margin-left: 40px;">$9 \cdot 9$</p> <p style="margin-left: 40px;">$10 \cdot 7$</p> <p style="margin-left: 40px;">$1 \cdot 7$</p> <p style="margin-left: 40px;">$9 \cdot 7$</p> <p>b. Can you use the pattern to help you find $9 \cdot 8$? Explain:</p>	<p>2. Simplify:</p> $\frac{3-8}{1-5}$ <p>Answer:</p>
Preparing for upcoming lessons	<p>3. If Jonah sees this image on his computer while he is downloading a file, about how long will the entire download take?</p> <div data-bbox="269 961 766 1129" style="border: 1px solid gray; border-radius: 10px; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">40% remaining...</p>  <p style="text-align: center;">8:00 minutes remaining</p> </div> <p>Explain your answer:</p>	<p>4. If an elevator traveled 10 floors in 5 seconds, how many floors did it travel in 1 second?</p> <p>Explain your reasoning:</p>
Reviewing pre-algebra ideas	<p>5. a. José made these grades on tests: 78, 88, 98. Without doing any computing, what is his average? _____</p> <p>b. If he makes a _____ on his next test, his average will stay the same.</p> <p>c. If he makes a _____ on his next test, his average will go up.</p> <p>d. If he makes a _____ on his next test, his average will go down.</p>	<p>6. Plot the following points on the grid provided.</p> <p style="text-align: center;">A (1,7); B (5,2); C (8,0); D (9,9)</p> 

HOMEWORK 7.3

Notes or additional instructions based on whole-class discussion of homework assignment:

1. Match each description with the corresponding graph. Write a letter in each blank.

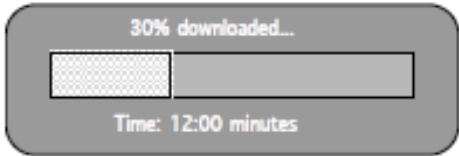
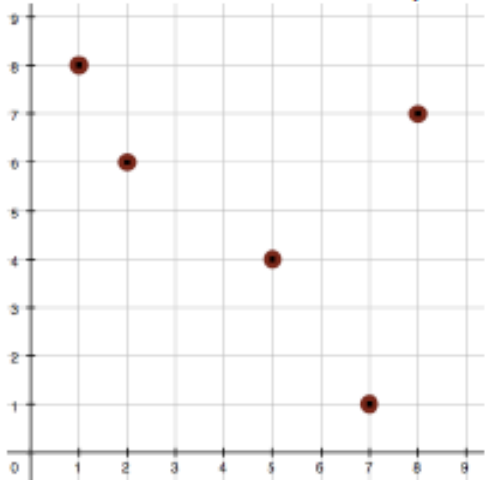
- a. You started walking quickly away from the motion detector and gradually slowed down. _____
- b. You started walking away slowly from the motion detector and gradually sped up. _____
- c. You walked toward the motion detector at a fast, constant rate and then you walked away at a slower constant rate. _____
- d. You walked away from and then toward and then away from and then toward the motion detector. _____
- e. You started walking quickly toward the motion detector and gradually slowed down. _____
- f. You started walking slowly toward the motion detector and gradually sped up. _____



2. Complete the math journal.

Scenario:	Describe in words what the graph would look like.	Sketch the graph.
a. You start walking slowly and speed up.		
b. You start walking quickly and slow down.		
c. You walk at a constant rate.		

STAYING SHARP 7.3

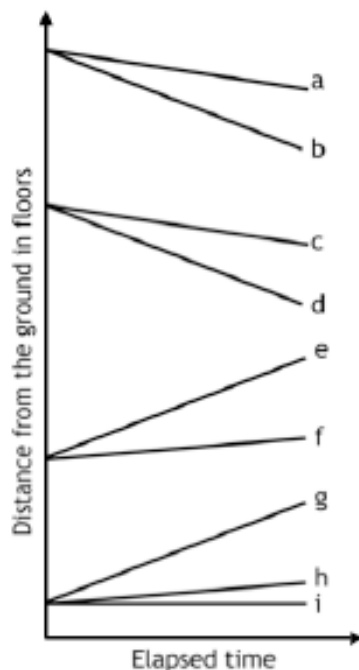
Practicing algebra skills & concepts	<p>1. Do the following calculations. Look for a pattern. $98 + 47$ $100 + 45$ Can you use the pattern to help you figure $97 + 74$? Explain:</p>	<p>2. Simplify:</p> $\frac{1-9}{6-(-2)}$ <p>Answer:</p>
Preparing for upcoming lessons	<p>3. Twelve minutes after he starts downloading a file, Mario looks at his computer and sees this image. About how long will it take to download the entire file?</p>  <p>Answer with supporting work:</p>	<p>4. a. Tali jogs a mile in 12 minutes. How many miles per hour is Tali running?</p> <p>b. Sandra runs twice as fast as Tali. How many miles per hour is Sandra running? How long does it take for Sandra to run a mile?</p>
Reviewing pre-algebra ideas	<p>5. Two numbers have an average of 17. If one of the numbers is 11, what is the other number?</p> <p>Answer with supporting work:</p>	<p>6. Label each point in the graph with its coordinates written as an ordered pair.</p> 

HOMWORK 7.4

Notes or additional instructions based on whole-class discussion of homework assignment:

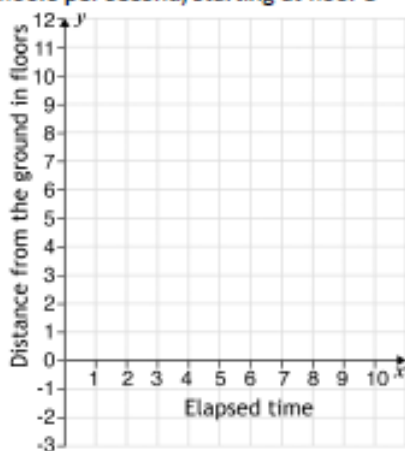
1. Match each description with the corresponding graph. Write a letter in each blank.

- a. The elevator starts on floor 3 and rises at 4 floors per second. _____
- b. The elevator starts on floor 8 and descends at 1 floor per second. _____
- c. The elevator starts on floor 8 and descends 4 floors per second. _____
- d. The elevator pauses on floor 2. _____
- e. The elevator starts on floor 5 and descends at 4 floors per second. _____
- f. The elevator starts on floor 5 and descends at 1 floor per second. _____
- g. The elevator starts on floor 2 and rises at 4 floors per second. _____
- h. The elevator starts on floor 3 and rises at 0.5 floors per second. _____
- i. The elevator starts on floor 2 and rises at 0.5 floors per second. _____

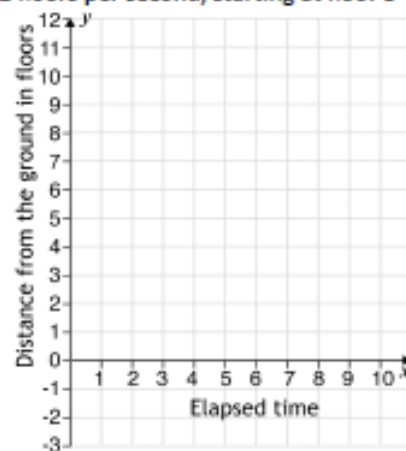


2. For each description of an elevator's motion, sketch a graph. Label each graph.

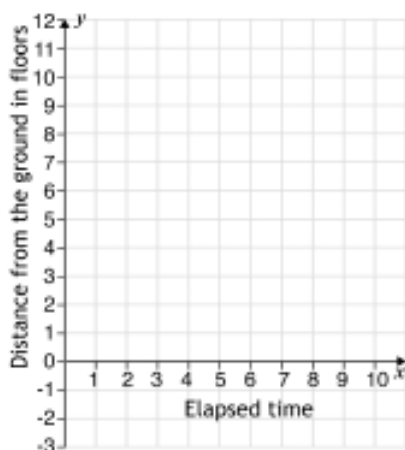
- a. Rate of -2 floors per second, starting at floor 3



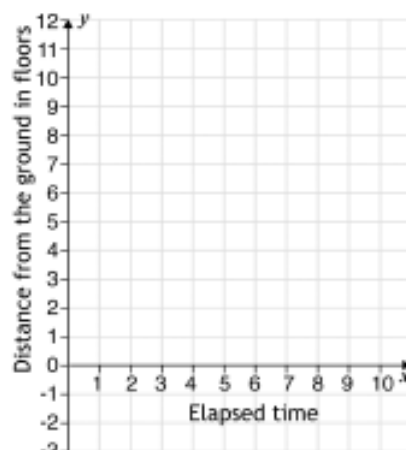
- b. Rate of 2 floors per second, starting at floor 3



- c. Starting at floor 8, rate of $\frac{1}{2}$ (1 floor per 2 seconds)



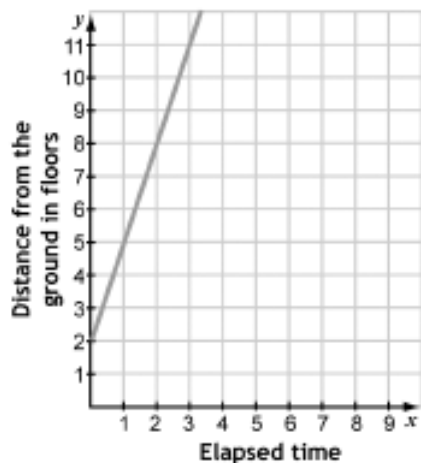
- d. Starting at floor -1, rate of $-\frac{1}{3}$ floors per second (-1 floor per 3 seconds)



3. Given the following elevator graphs, find the starting floor and the rate.

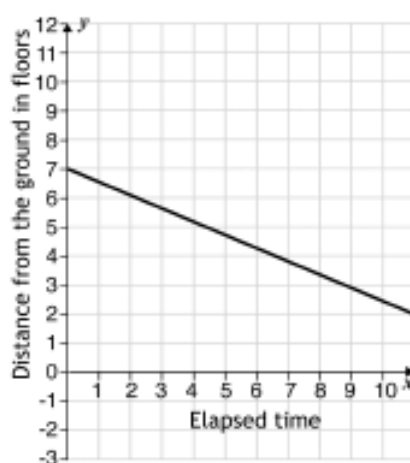
- a. Starting floor: _____

Rate: _____

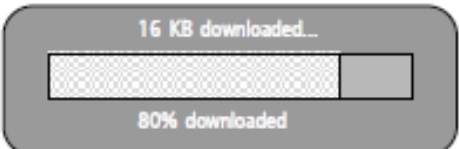
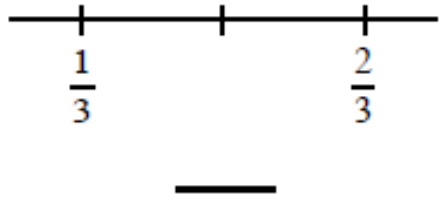


- b. Starting floor: _____

Rate: _____



STAYING SHARP 7.4

Practicing algebra skills & concepts	<p>1. Simplify each of the following:</p> $\frac{3}{4} + \frac{1}{4}$ $\frac{3}{4} + \frac{2}{4}$ $\frac{3}{4} + \frac{1}{2}$	<p>2. Simplify:</p> $\frac{2 - (-7)}{5 - (-3)}$ <p>Answer:</p>
Preparing for upcoming lessons	<p>3. If the computer screen shows this image as Calinda is downloading a file, how big is the file she is downloading?</p>  <p>16 KB downloaded...</p> <p>80% downloaded</p> <p>Explain your reasoning:</p>	<p>4. Terrence's friend, Tony, skates on inline skates. Tony skated the 2 miles to school in 14 minutes. Terrence skateboarded 4 miles to school in 30 minutes. Who skated faster? Justify your answer.</p> <p>Answer:</p>
Reviewing pre-algebra ideas	<p>5. Three numbers have an average of 15. If two of the numbers are 10 and 12, then what is the other number?</p> <p>Answer with supporting work:</p>	<p>6. The tick marks are evenly spaced. What number belongs in the blank?</p> 

HOMEWORK 7.5

Notes or additional instructions based on whole-class discussion of homework assignment:

Part I: Find the rate for each graph or table.

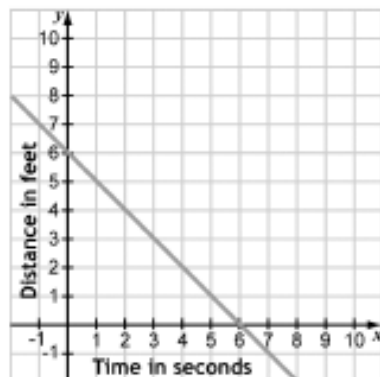
1. Rate = _____

Time (sec)	Dist (ft)
0	1
1	6
2	11

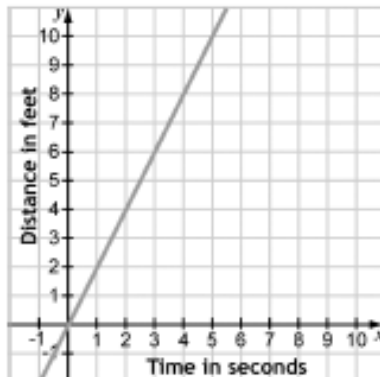
2. Rate = _____

Time (sec)	Dist (ft)
0	1
3	7
6	13

3. Rate = _____



4. Rate = _____



Part II: Match each rate with a table and graph.

	TABLE (A-D)	GRAPH (W-Z)
5. Rate of 2 feet per second		
6. Rate of -2 feet per second		
7. Rate of 1 foot per second		
8. Rate of -1 foot per second		

A.

Time (sec)	Dist (ft)
0	2
4	6
8	10
12	14

B.

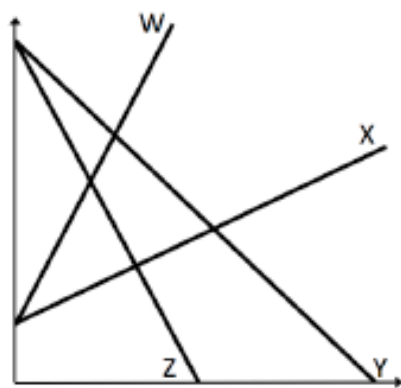
Time (sec)	Dist (ft)
0	2
2	6
4	10
6	14

C.

Time (sec)	Dist (ft)
0	12
2	8
4	4
6	0

D.

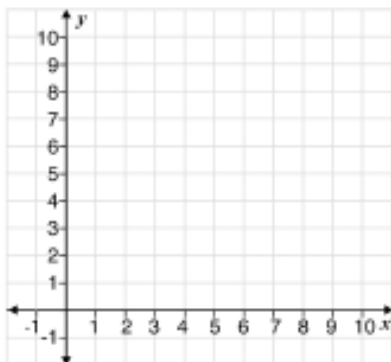
Time (sec)	Dist (ft)
0	12
4	8
8	4
12	0



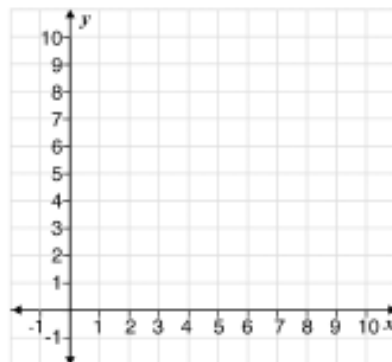
9. Describe the strategy you used to match the rates with the tables and graphs.

Part III: Sketch a graph of distance versus time for each description. Label each graph.

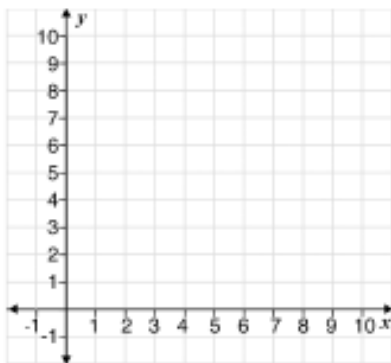
10. Elevator: rate of 2, starting at floor 5



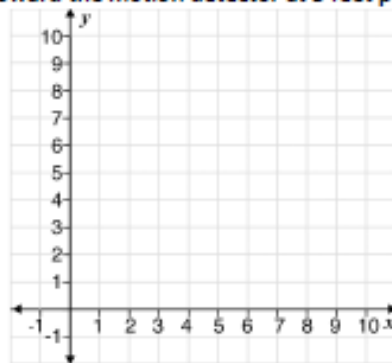
11. Terrence started 2 feet from the motion detector and skated away at 5 feet per second.



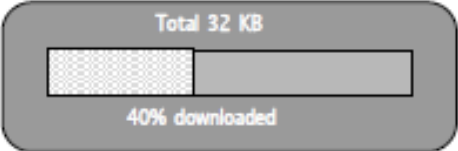
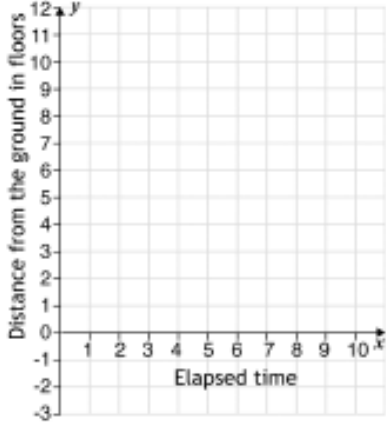
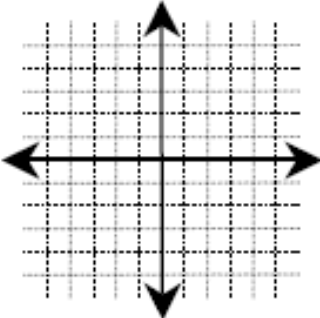
12. Elevator: rate of -1, starting at floor 10



13. Terrence started 10 feet from the motion detector and skated toward the motion detector at 3 feet per second



STAYING SHARP 7.5

Practicing algebra skills & concepts	<p>1. Which value is the closest to $\frac{1}{9} \cdot \frac{24}{25}$?</p> <p>a. 0 b. 0.5 c. 1 d. $\frac{21}{20}$</p> <p>Explain your answer:</p>	<p>2. If $a = 7$, $b = 3$, $c = 9$, and $d = 1$, find the value of the following expression:</p> $\frac{a-b}{c-d}$ <p>Answer:</p>
Preparing for upcoming lessons	<p>3. Adriana is downloading a file and notices this image. How much of the file has been downloaded?</p> 	<p>4. Sketch a graph of an elevator starting at the first floor and rising by 1 floor per second.</p> 
Reviewing pre-algebra ideas	<p>5. Invent a six-value data set for which the median is 5.</p> <p>Answer:</p>	<p>6. If you were plotting the following points on the grid provided, what would you choose as your scales for the x- and y-axes? (3,20), (-14,11), (0,13), (19,2), (1, -17)</p> <p>One unit on the x-axis equals: One unit on the y-axis equals:</p> 

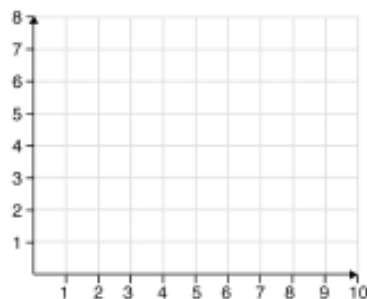
HOMEWORK 7.6

Notes or additional instructions based on whole-class discussion of homework assignment:

1. Fill in the missing information about these skates recorded by a student. (Fill in the table, create the graph and/or find the rate.) Assume that these graphs are linear.

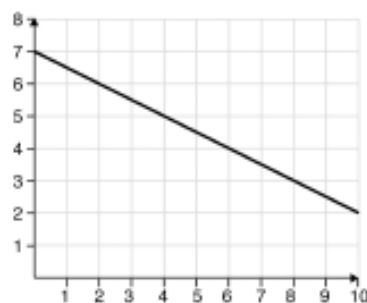
- a. How fast was he skating? _____

Time (sec)	Distance (ft)
0	6
1	5
2	
3	



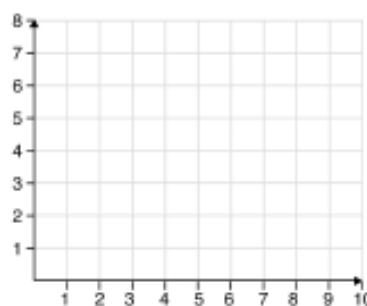
- b. How fast was he skating? _____

Time (sec)	Distance (ft)



- c. How fast was he skating? _____

Time (sec)	Distance (ft)
1	1
2	
3	5
4	

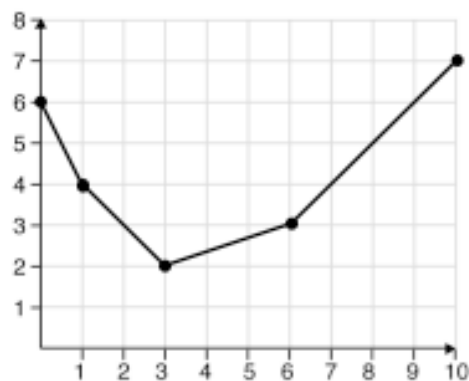


2. What are the differences between a positive rate and a negative rate? Use a graph and a table to support your answer.

3. What does it mean for an elevator to have a rate of $\frac{1}{2}$ floors per second? Use a graph and table to support your answer.

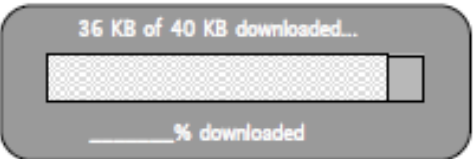
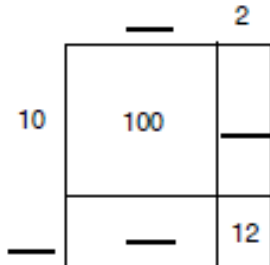
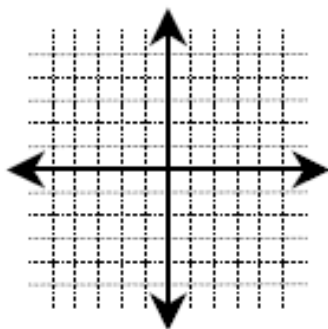
4. The graph shows data collected from a skateboarder's skate. Fill in the missing data from the table. Then use the table to answer the following questions.

Time (sec)	Distance (ft)
0	
1	
3	
6	
10	



- Find the skateboarder's average rate between 0 and 1 second.
 - Find the skateboarder's average rate between 1 and 3 seconds.
 - Find the skateboarder's average rate between 3 and 6 seconds.
 - Find the skateboarder's average rate between 6 and 10 seconds.
 - Look over your answers for parts a-d. Compare the rates for parts a and b to the rates for parts c and d. What do you notice? What does this mean?
5. Consider the graph in question 4. Write a story to describe the skateboarder's skate.
6. Look at the graph in question 4. Does this graph represent a function? Explain.
7. If this graph represents a functional relationship, determine the domain and range of the situation.

STAYING SHARP 7.6

Practicing algebra skills & concepts	<p>1. Which value is the closest to $0.9 \cdot 997$?</p> <p>a. 1,000 b. 81 c. 10,000 d. 10</p> <p>Answer with supporting work:</p>	<p>2. If $(e,f) = (7,2)$ and $(g,h) = (11,5)$, find the value of the following expression:</p> $\frac{h-f}{g-e}$ <p>Answer:</p>
Preparing for upcoming lessons	<p>3. Ravi glanced at the computer as he was downloading a file. What percent had downloaded?</p>  <p>Answer with supporting work:</p>	<p>4. Fill in the blanks for the area model:</p>  $16 \cdot 12 = (10 + \underline{\quad})(\underline{\quad} + 2)$
Reviewing pre-algebra ideas	<p>5. Invent a five-value data set for which the mean is 6 and the mode is not 6.</p>	<p>6. Choose an appropriate scale for each axis and plot the following points on the grid provided: $(20,0)$ $(-8,4)$ $(12,-12)$ $(0,-16)$.</p> <p>One unit on the x-axis equals:</p> <p>One unit on the y-axis equals:</p> 

HOMEWORK 7.7

Notes or additional instructions based on whole-class discussion of homework assignment:

1. Match each rate with a table and graph.

	TABLE (A-D)	GRAPH (V-Z)
a. Rate of 2.5 feet per second		
b. Rate of -1.5 feet per second		
c. Rate of -3 feet per second		
d. Rate of 0 feet per second		
e. Rate of 0.5 foot per second		

A.

Time (sec)	Distance (ft)
0	21
4	23
8	25
12	27

B.

Time (sec)	Distance (ft)
0	39
2	33
4	27
6	21

C.

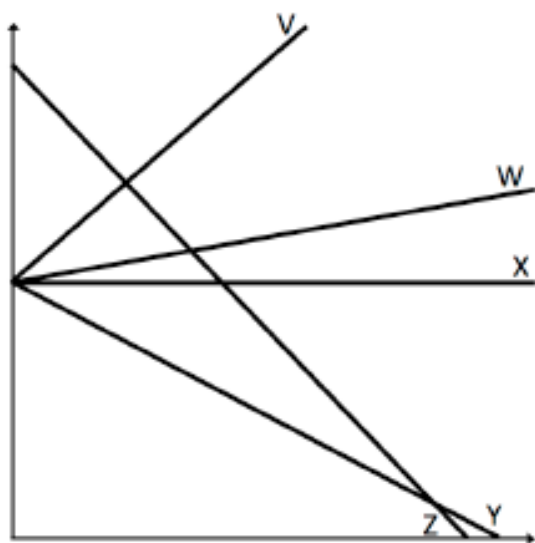
Time (sec)	Distance (ft)
0	21
2	26
4	31
6	36

D.

Time (sec)	Distance (ft)
0	21
4	15
8	9
12	3

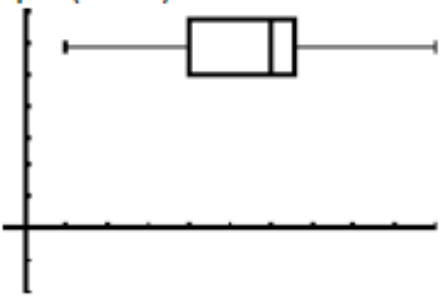
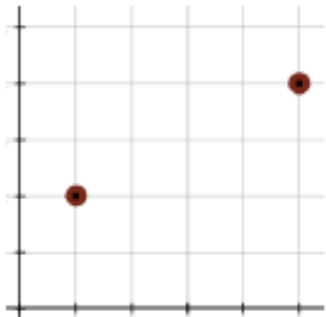
E.

Time (sec)	Distance (ft)
7	21
11	21
13	21



2. Describe the strategy you used to match the rates with the tables and graphs.

STAYING SHARP 7.7

Practicing algebra skills & concepts	<p>1. Rewrite each expression without parentheses:</p> $4 - (3 - x)$ $-4(-3 + x)$	<p>2. If $(m,n) = (3,7)$ and $(o,p) = (8,-2)$, find the value of the following expression:</p> $\frac{n-p}{m-o}$ <p>Answer:</p>									
Preparing for upcoming lessons	<p>3. Create your own download problem. Specify the following:</p> <ul style="list-style-type: none"> • The total size of the file, in KB: _____ • The amount downloaded so far, in KB: _____ • The amount left to download, in KB: _____ • The percentage downloaded: _____ • The percentage remaining: _____ <p>Make sure your answers agree with one another. Then draw a download bar to illustrate your problem.</p>	<p>4. Fill in the blanks in the area model:</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td></td> <td style="text-align: center;">10</td> <td style="text-align: center;">—</td> </tr> <tr> <td style="text-align: center;">—</td> <td style="text-align: center;">100</td> <td style="text-align: center;">—</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">—</td> <td style="text-align: center;">40</td> </tr> </table> </div> $18 \cdot 15 = (10+8)(10+5)$ $= (10 \cdot 10) + (10 \cdot 8) + (8 \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$		10	—	—	100	—	8	—	40
	10	—									
—	100	—									
8	—	40									
Reviewing pre-algebra ideas	<p>5. Identify the following values for the box-and-whisker plot. (You may need to select a scale for the graph first.)</p>  <p>Median: _____</p> <p>Minimum: _____</p> <p>Maximum: _____</p>	<p>6. The two points plotted on the grid have the coordinates $(3,6)$ and $(15,12)$.</p> <ol style="list-style-type: none"> Label each point with its coordinates. Label the tick marks on each axis. Plot the point $(12,9)$ on the grid and label it. Plot the point $(5,10)$ on the grid and label it. 									

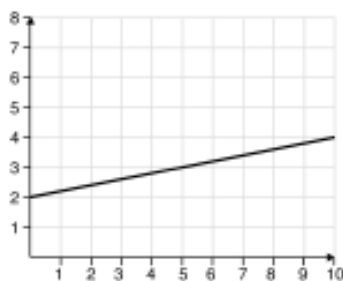
HOMEWORK 7.8

Notes or additional instructions based on whole-class discussion of homework assignment:

Part I: Fill in the missing information about these skates recorded by a student. (Fill in the table and/or reconstruct the graph, then find the rate.) Assume the skater is traveling at a constant rate.

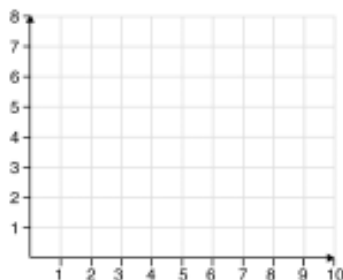
1. How fast was he skating?

Time (sec)	Distance (ft)



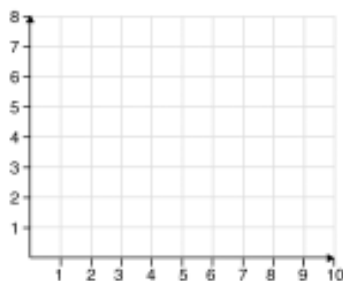
2. How fast was he skating?

Time (sec)	Distance (ft)
0	
3	7
6	3



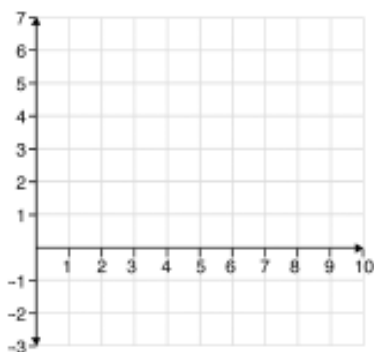
3. How fast was he skating?

Time (sec)	Distance (ft)
3	3
5	
7	7
9	



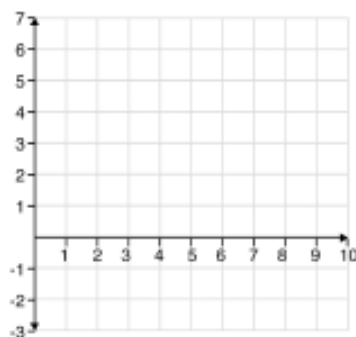
4. How fast was he skating?

Time (sec)	Distance (ft)
2	0
4	
6	
8	3



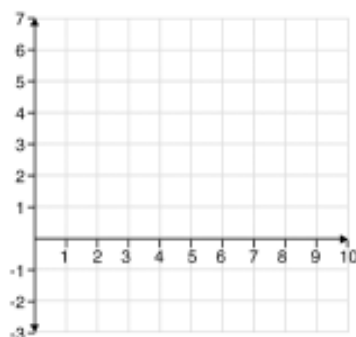
5. How fast was he skating?

Time (sec)	Distance (ft)
1	7
-	-
5	2



6. How fast was he skating?

Time (sec)	Distance (ft)
2	
3	5
4	7



7. Choose two table and graph pairs in questions 1-6, then write stories about them to match the representations.

a. Make one set of representations a skateboard-motion detector story.

b. Make one set of representations an elevator story.

Part II: Reflect on what you have learned so far in this topic. Complete the following math journal.

Big idea from the unit	Describe how the idea challenged you.	Describe the skills you used to overcome this challenge.
1.		
2.		
3.		
4.		
5.		

STAYING SHARP 7.8

Practicing algebra skills & concepts	<p>1. Calculate the following products. Look for a pattern.</p> $3 \cdot 20 =$ $3 \cdot 2 =$ $3 \cdot 18 =$ $9 \cdot 20 =$ $9 \cdot 2 =$ $9 \cdot 18 =$ Use the pattern to help you find the value of $6 \cdot 18$. Explain:	<p>2. If $(m, n) = (3, -7)$ and $(o, p) = (8, -2)$, find the value of the expression:</p> $\frac{n - p}{m - o}$ <p>Answer with supporting work:</p>									
Preparing for upcoming lessons	<p>3. Nina is trying to download a file of 520 MB in total size. So far, it has taken 117 seconds and 130 MB has completed.</p> <p>Enter the facts given into the correct places in this table:</p> <table border="1" data-bbox="224 877 863 976"> <thead> <tr> <th></th> <th>Time</th> <th></th> </tr> </thead> <tbody> <tr> <td>Part completed</td> <td></td> <td>130 MB</td> </tr> <tr> <td>Whole</td> <td></td> <td>520 MB</td> </tr> </tbody> </table> <p>Then, find the time for Nina to download the whole file, if the file continues to download at a constant rate.</p> <p>Answer:</p>		Time		Part completed		130 MB	Whole		520 MB	<p>4. Michael did 45 pushups in 3 minutes. Michelle did 36 pushups in 2 minutes. Who did pushups at a faster rate? How much faster was that person?</p> <p>Answer with supporting work:</p>
	Time										
Part completed		130 MB									
Whole		520 MB									
Reviewing pre-algebra ideas	<p>5. Consider the data set 3, 4, 5, 6, 7, 7, 10.</p> <p>Find each measure of central tendency for the data set:</p> <p>median _____</p> <p>mode _____</p> <p>average _____</p> <p>Circle the three true statements in the list below:</p> <p>median < mode mode < average median < average</p> <p>median = mode mode = average median = average</p> <p>median > mode mode > average median > average</p>	<p>6. Choose an appropriate scale for each axis and plot these points on the grid: (100, 5) (10, -80) (-40, -10) (15, 60)</p> <p>One unit on the x-axis equals:</p> <p>One unit on the y-axis equals:</p> 