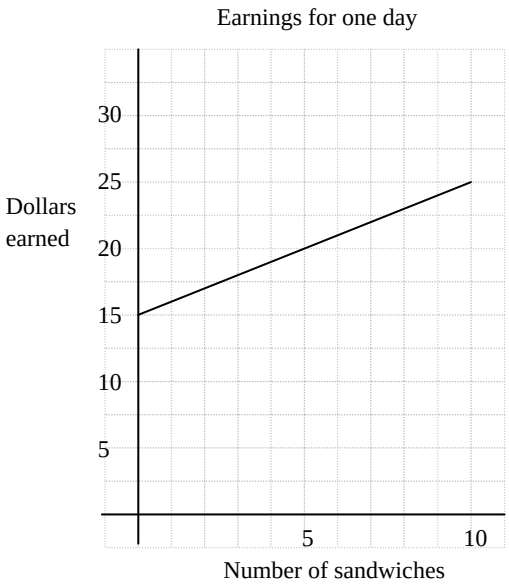
Circle the letter of the correct answer for #1-3.

(7 pts)1. Identify what changes should be made in the graph shown if it is to represent the following situation: *Ashley delivers sandwiches for Jimmy John's. She is paid $15 for a day's work and $1 for every sandwich she delivers.*



A. the line should be steeper

B. the line should be a series of dots instead of a smooth line

C. the line should begin at (0,0)

D. there is nothing incorrect about the graph

E. more than one thing is incorrect about the graph

(7 pts)2. If Wile E. Coyote travels n feet in 10 seconds, his speed is:

A. $10n$ miles per hour

B. $10n$ feet per second

C. $\frac{n}{10}$ miles per hour

D. $\frac{10}{n}$ feet per second

E. None of the above

(7 pts)3. Calculate the given product. $\left(\frac{2}{3}x+4\right)\times\left(\frac{1}{2}x+1\right)$

A. $\frac{2}{3}x^2+\frac{4}{3}x+4$

B. $\frac{1}{3}x^2+\frac{4}{3}x+4$

C. $\frac{2}{3}x^2+\frac{8}{3}x+4$

D. $\frac{1}{3}x^2+\frac{1}{3}x+4$

E. $\frac{1}{3}x^2+\frac{8}{3}x+4$

(6 pts)4. For the given quantity that is increasing, identify a related quantity that would increase and a related quantity that would decrease.

As the number of passengers who have boarded the airplane increases,

a) related quantity that would increase: _____

b) related quantity that would decrease: _____

(10 pts)5. The movie theater is filled to capacity with 200 people. When the movie is over, people will leave at a rate of 30 per minute.

Describe in words the relationship between the number of people remaining in the theater and time.

Fill in the table with data to describe this relationship.

minutes	people

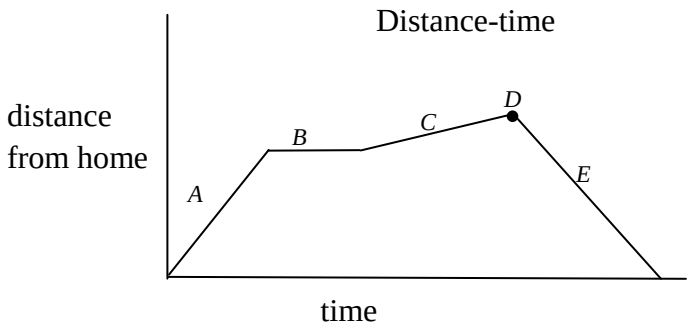
Use algebraic symbols to describe this relationship. Be sure to label your variables.

What is the *y*-intercept and what does it mean about time and the theater? (0, ____)

What is the *x*-intercept and what does it mean about time and the theater? (____, 0)

(10 pts)6. The graph shows distance from home as a function of time for Laura's trip to the mall. Write a brief description of her trip that explains all features of the graph.

A.



B.

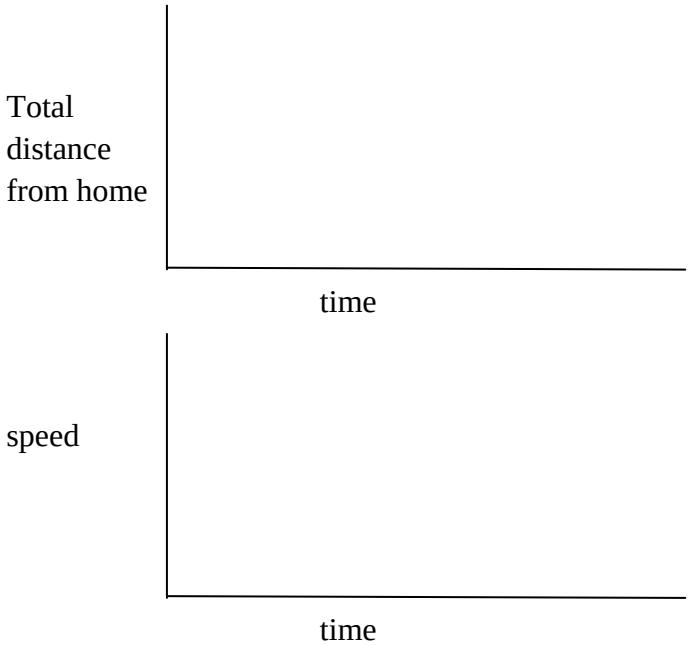
C.

D.

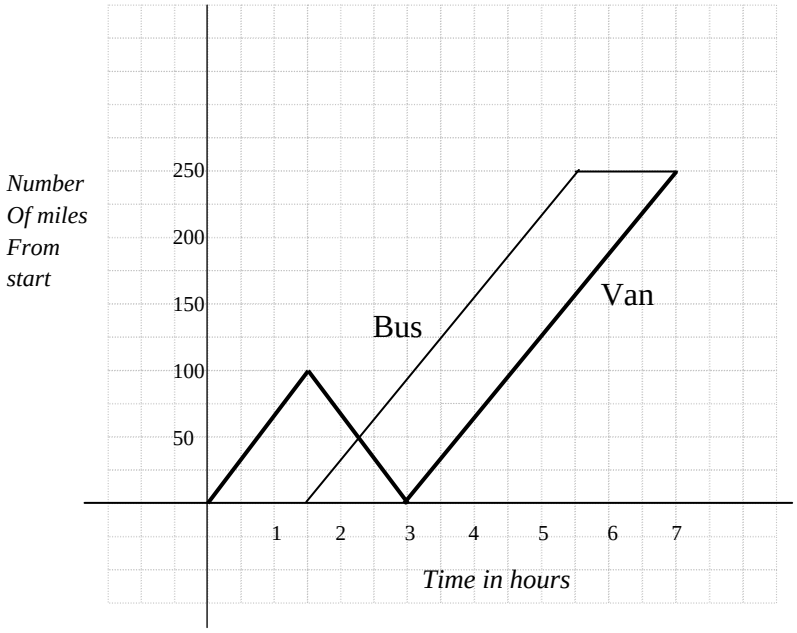
E.

(8 pts)7. For this situation, make a distance-time graph and a speed-time graph. Align them so the corresponding pieces can be compared. (Assume cartoon-like changes in speed.)

Allison rode her bike at a leisurely pace until she got a flat. She stopped to fix the flat and it took her twice as long as the amount of time she had spent riding. When she resumed riding, she rode at her fastest speed to get to her friend's house in time to watch American Idol.



(10 pts)8. Determine whether each statement is true or false, based on the information shown in the graph.



a) The bus waited two hours for the van to arrive. **True** **false**

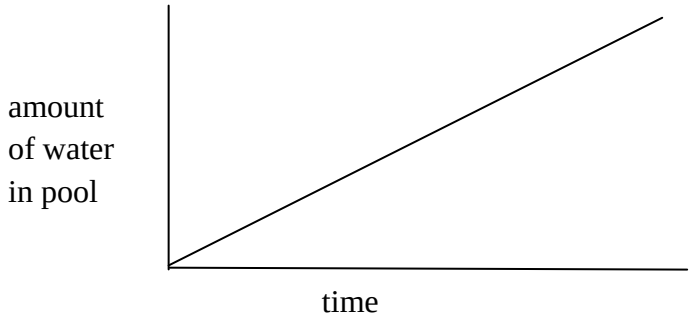
b) The van turned around after 1.5 hours and went back to where it started. **True** **false**

c) The van traveled faster than the bus. **True** **false**

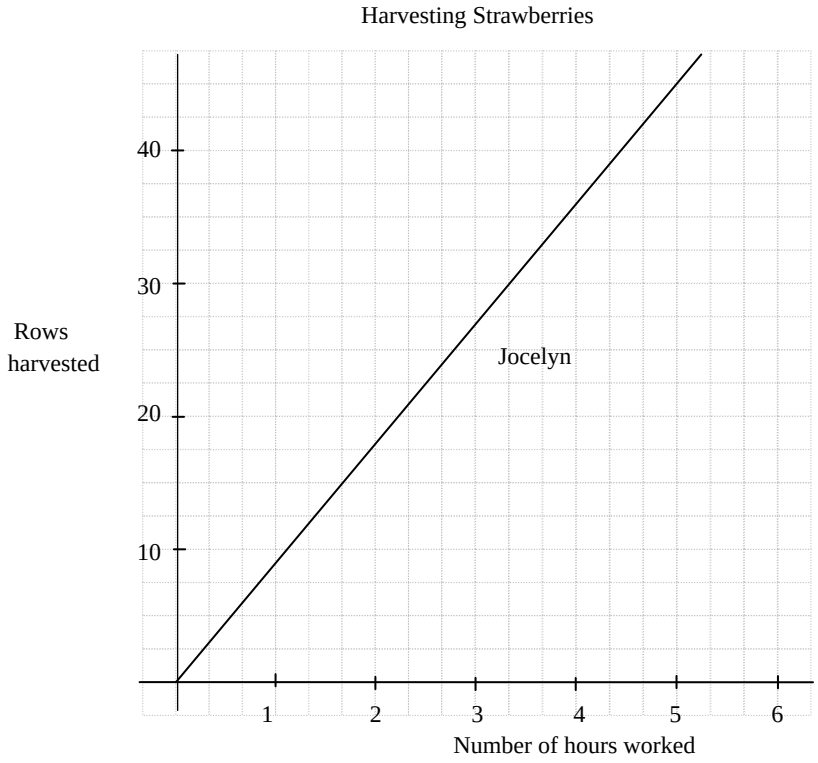
d) The bus traveled at a rate of 60 mph. **True** **false**

e) The van traveled a total of 450 miles. **True** **false**

(4 pts)9. The graph shown represents the amount of water in a child's pool as time goes by if a small hose is turned on to maximum capacity. On the same grid, draw a graph to show a new situation with the same pool, but a larger hose turned on to maximum capacity.



(10 pts)10. Jeremy and Jocelyn are helping to harvest strawberries. Jeremy can harvest 7 rows/hour and Jocelyn can do 9 rows/hour. Jeremy started before Jocelyn and already has 10 rows completed when she begins. The graph for Jocelyn's number of rows harvested is already drawn. On the same set of axes, draw a graph to represent Jeremy's work.



Write an equation to represent Jeremy's number of rows harvested as it relates to hours worked alongside Jocelyn. Identify your variables.

Show your work to determine the point of intersection of the two lines.

Hours: _____ Rows: _____

Explain the meaning of the point of intersection as it relates to Jeremy and Jocelyn.

(8 pts)11. Suppose Turtle runs at 60 ft/s. Rabbit runs at 90 ft/s, but gives Turtle a 2-second head start. How many seconds will Turtle have run when Rabbit catches up with him? Show your work.

Answer: _____

Circle the method you used to solve:

table graph algebra equations quantitative reasoning

(8 pts)12. Kaitlyn attended Ivy Tech and completed 20 credit hours with a GPA of 3.1. She has been attending Purdue long enough to complete 15 credit hours with a GPA of 2.4. What is her overall GPA? Show and label all steps of your work. Do not round.

Overall GPA: _____

(5 pts)13. Write this number in expanded form. 1024_{six}

Expanded form:

What would be the value in base ten? Do the arithmetic indicated by the expanded form.

Answer _____