

1. Rick took his family to a major league baseball game. He gave his son \$100 to buy food and drinks for the group. Hot dogs cost \$3.50 each, beer costs \$8.00 each, and soda costs \$5.00 each. His son returned with \$25.50 in change, and Rick was arrested for sending a nine-year-old to buy beer, but that's neither here nor there. There were 8 beverages total in the order. How many hot dogs, beers, and sodas were purchased?

2. On the way to the airport on December 8, 2011, my wife's car hit a huge hole in a construction area, damaging the front right wheel. The temporary tire forced us to decrease our average speed by 15 miles per hour. If the 39-mile drive usually takes us 45 minutes, how much time should we have budgeted for the drive home from the airport?

3. A landscape architect is planning a new nature area in the middle of an urban campus. She wants the length to be twice the width, and wants to put a 3-foot high retaining wall around the perimeter. There will be 300 total feet of wall installed. How wide will this area be?

4. A pool is being built in a new student rec center at Falcon Community College. The pool is designed to be a 60 ft by 26 ft rectangle, and the deck around the pool is going to be lined with slate tiles that are 1 ft squares. How many tiles are needed? (This is not quite as easy as it seems at first...)

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Applications

Name _____

The next table shows the value remaining on a \$20 phone card based on the number of minutes the card has been used for calls. Obviously, the value remaining on a new \$20 card is \$20; from the table, we can see that the value then goes down by \$0.07 for each minute used.

Talk time (min)	Value remaining (\$)
0	\$20.00
10	\$19.30
20	\$18.60
30	\$17.90
40	\$17.20
50	\$16.50
60	\$15.80
70	\$15.10
80	\$14.40
90	\$13.70
100	\$13.00
110	\$12.30
120	\$11.60

- The value remaining on the card can be described by the formula _____ where x is the independent variable, and represents the number of minutes used.
- How much value remains after 50 minutes of talk time?
- How many minutes can the user talk until the value remaining is down to \$13.00?
- Describe when the value remaining will be more than \$13.00.
- Describe when the value remaining will be less than \$15.10.

The two tables below display the charges for two taxi services based on the number of miles driven. Yellowish Taxi has an initial charge of \$2.30 plus \$0.15 for each quarter mile; Calloway Cab has an initial charge of \$2.0 plus \$0.20 for each quarter mile.

Yellowish Taxi

Distance (mi)	Cost (\$)
0.0	
0.5	
1.0	
1.5	
2.0	
2.5	
3.0	

Calloway Cab

Distance (mi)	Cost (\$)
0.0	
0.5	
1.0	
1.5	
2.0	
2.5	
3.0	

6. The cost to ride with Yellowish Taxi for m miles is

_____ dollars.

7. The cost to ride with Calloway Cab for m miles is

_____ dollars.

8. Use your answers to Questions 6 and 7 to fill in the table.

9. When would the two cabs cost the same?

10. When would you choose Yellowish Taxi? When would you choose Calloway Cab?

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Applications

Name _____

In many of the lessons so far, we've used the ideas behind solving equations or inequalities without actually the symbols and procedures. In this assignment, you'll be asked to check answers to earlier problems by setting up an equation or inequality. You'll need to locate that problem in its original location to either set up the equation or verify your result. Each equation/inequality is given with a reference to the problem it helps to solve.

From Lesson 1-1 Class Question 1; fill in the blank with the number in the "Homework" row of the table.

$$168P = \underline{\hspace{2cm}}$$

1. Solve the equation, showing your work and checking your solution.

2. Describe what the variable in the equation represents, and what each side of the equation represents.

From Lesson 1-1 Class Question 4; fill in the blank with the number in the "Sleep" row of the table.

$$\underline{\hspace{2cm}} = \frac{d}{360}$$

3. Solve the equation, showing your work and checking your solution.

4. Describe what the variable in the equation represents, and what each side of the equation represents.

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Applications Name _____

From Lesson 2-3 Applications Question 4:

$$\frac{22.09}{1,000} = \frac{x}{18,000}$$

5. Solve the equation, showing your work and checking your solution.

6. What does the variable represent? What is the significance of the ratio $\frac{22.09}{1,000}$?

From Lesson 2-7 Group Question 4:

$$1,000 + 50x = 4,500$$

7. Solve the equation, showing your work and checking your solution.

8. Explain the significance of this solution, including a description of the problem that

From Lesson 2-7 Application Question 3:

$$w + 2w + w + 2w = 300$$

9. Solve the equation, showing your work and checking your solution.

10. Explain why the variable w appears 4 separate times in the equation. What does w represent?

From Lesson 2-8 Applications Question 10:

$$2.30 + 0.60x < 2.00 + 0.80x$$

11. Solve the inequality, showing all work.

12. Describe what each side of the inequality represents.

13. Explain why an inequality makes much more sense for solving this problem than an equation.