

# Utica Junior High Lesson Study Team 2004 / 2005



Sue Wozniak - Jeanette Junior High  
Kim Charland - Jeanette Junior High  
Lynn Dybalski - Shelby Junior High  
Stacey Knoll - Bemis Junior High  
Eric Newcomb - Jeanette Junior High  
Debbie Barnett - Lake Shore - Facilitator  
Antoinette Arkenburg - Farmington - Knowledgeable Other

## **The Individual Team**

**Kim Charland:** I am currently teaching 7<sup>th</sup> grade Transition Math and Advanced 7<sup>th</sup> grade Math at Jeannette Jr. High. I have been teaching at Jeannette Jr. High for 7 years and I have been teaching overall for 12 years. I am currently the Math Department Chair for my building. I have also taught 8<sup>th</sup> grade math and 9<sup>th</sup> grade math.

**Lynn Dybalski:** I have been teaching for 24 years. I taught high school for 14 years prior to coming to Shelby Junior High. At Shelby I have taught grades 7 – 9 and currently I am teaching ninth grade Algebra and Geometry. I was the K – 12 Math Coordinator for the district for a year, and now stay very involved in Math Curriculum for the district.

**Stacey Knoll:** Mathematics teacher at Bemis Junior High for 6 years; Department Head for 3 years. I have taught the accelerated 7<sup>th</sup> grade (Project) Math Class and Math 8 for 6 years. I have currently added Math 7 to my schedule.

**Eric Newcomb:** Currently teaching at Jeannette Junior High School. I have been teaching for 6 years. I teach eighth grade Transition Math and Advanced Math classes.

**Susan Wozniak:** Mathematics teacher for 2 years. I taught 1 year in 8<sup>th</sup> grade Transition Math and 1 year in 7<sup>th</sup> grade at Davis Junior High. I have taught an Accelerated 7<sup>th</sup> grade math classes and Advanced 9<sup>th</sup> grade geometry.

**Antoinette Arkenburg:** Currently teaching sixth grade mathematics for Farmington Public Schools. I taught sixth and seventh grade mathematics and science for five and one-half years. Other teaching experiences include: teaching four sections of EED 302 (the math methods course for elementary education teachers) at Oakland University. Through the Lesson Study, Lesson Learned Grant I have taught EST 533 (Number and Operations) and EST 534 (Algebra) in partnership with Oakland University and the Macomb ISD.

**Deborah Barnett:** For the past 4 years, I have served as the Math and Language Arts Consultant for Lake Shore Public Schools. In addition, I also am the Professional Development Coordinator. With Lake Shore, I have had the opportunity to participate in several large Lesson Study forums in Patterson, New Jersey and Greenwich, Connecticut. My district currently uses Lesson Study as a valuable form of Professional Development. We have 4 to 5 scheduled Lesson Study observations during our ½ day professional development days. Our district has developed a blackboard website that is dedicated to posting polished lessons that have been through all of the stages of Lesson Study. I also participated in writing an extension module on Lesson Study for the MiClass Training in which each trainer of trainers received a DVD developed by Lake Shore to show each stage of the Lesson Study process. Before Lake Shore, I taught for Detroit Public Schools for 5 years. I have taught kindergarten half-days in addition to teaching grades 3 - 8 mathematics. I also taught 6<sup>th</sup> and 7<sup>th</sup> grade Title I students in Fort Worth, Texas.

## **How and Why We are Involved in Lesson Study**

As an invitation to the Lesson Study and Lesson Learned Grant, Debbie Ferry, Mathematics Consultant for the Macomb County School District, electronically mailed Macomb County Schools inviting them to participate in Lesson Study.

Individual teachers responded to the electronic mail expressing their interest in this grant funded Lesson Study project through the Macomb Intermediate School District.

Opportunities to enhance the craft of teaching.

How to infuse hands-on learning with current standards.

Improve student understanding and enhance student learning.

Working collaboratively with other teachers within and outside our district.

Received credit toward Masters Degree.

Received Professional Development hours.

## **School District and Environment**

Utica Community Schools is located in Northern Macomb County. It is the second largest school district in the State of Michigan. Our student population is approximately 29,000, with 4 high schools, 7 junior high schools, and 30 elementary schools. The parents in our district come from a wide range of educational backgrounds and socio-economic status. The district's make up consists of a variety of ethnic backgrounds; many of our students receive bilingual assistance.

## **Planning the Lesson**

We met for five days from December 2004 to March 2005, approximately once a month for six hours at a time.

Our initial discussion is in the following meeting notes:

Meeting Notes: Lesson Study, Day 1  
December 8, 2004

***Initial Discussion:***

Evaluated MEAP data and North Central Association goals to determine our global topic as being interpreting information. Also, examined grade level expectations in order to determine which core assessments are related to our global goal.

**Global Topic: Interpreting Information**

1. What do you know?
2. What do you have to find out?
3. Is there any extra information?
4. Did you answer the question using problem-solving methods?
5. Is your answer reasonable?

Algebraic reasoning is a weak area. We determined that we would start a unit involving problem solving strategies centered around interpreting tables, charts and written information. We decided that the following grade level expectation meets our global topic.

*A.RP.07.02 Represent directly proportional and linear relationships using verbal descriptions, tables, graphs and formulas, and translate among these representations.*

Long-Term Goal: Interpreting information using problem-solving strategies.

Short-Term Goal: Algebraic reasoning

Lesson will be in 8<sup>th</sup> grade.

**Key Point: What do students need to know in order to be successful on this topic of algebraic reasoning.**

We will lead into the Fun and Sun Rent-A-Car problem, but we need to teach the following:

- How to create a table from written information.
- How to create a graph from a table.
- How to interpret information from a table or graph.
- How to graph more than one line on a graph.

## Unit Plan

### **Unit objectives:**

Interpreting information involving algebra.

### **Unit Goal:**

To review and apply what we already know about representing directly proportional and linear relationships using verbal descriptions, tables, graphs and formulas, and translating among these representations

### **Introduction:**

- Review graphing ordered pairs in the four quadrants.
- Create a table and graph lines from an equation.
- Given a real-world application, create a table, graph and/or equation in order to solve the problem.
- Using the problem solving strategy, **examine**, the students will be able to make inferences from a table, graph and/or equation.
- Using a graphing calculator, graph the equation using the table.

### **Introduction Examples:**

- Graphing one line on a graph-use Variables and Patterns from Connected Math (CMP) page 43 problem #4- Video store rentals and membership fees.
- Graphing two lines on a graph-Use Moving Straight Ahead from CMP page 42 problem #3.4.
- Graphing three lines on a graph use Explain It –Cell Phone Problem.

***Choosing a Lesson Study Theme:  
Think about the students you serve.***

**Your Ideals:**

What qualities would you like these students to have 5 years from now?

- Resourceful problem solvers
- Confident individuals
- Educated consumers

**List Their Qualities Now:**

- Inquisitive
- Interested in spending/ saving money
- Easily influenced by peers, media and advertisements

***The Gap:***

Compare the ideal and the actual. What are the gaps that you would most like to work on?

- Perseverance
- Have confidence in their ability to solve problems
- Seeing connections between math and real world applications

***The Research Theme: (long-term goal)***

State positively the ideal student qualities you choose to work on.

***Fundamental academic skill that will ensure students' progress of problem solving.***

Your research theme:

***Students will become confident problem solvers.***

| <b>Number of Lesson</b> | <b>Content</b>  | <b>Points to Notice And Evaluate</b>   | <b>Materials, Strategies</b>  |
|-------------------------|---|--|---|
| 1 Friday (3-04-05)      | Plotting points on a coordinate graph   | Following pattern of x,y: identify the x and y coordinate<br><br>Know the 4 quadrants  | Practice 3-1<br>Graph paper   |
| 2 Monday (3-07-05)      | Creations of table from a given situation   | Generate a table<br><br>Label the two values being affected<br><br>Interpret the data<br><br>Make inferences   | Lesson worksheet<br><i>Creating a Table</i><br><br>Calculator<br><br>Lined paper  |
| 3 Tuesday (3-08-05)     | Write an equation from a given situation<br><br>Translating data from a table to create a graph   | Know the formula $y=mx + b$<br><br>correctly write an equation<br><br>identify m and b<br><br>correctly plot x and y value from table<br><br>label the graph x-axis, y-axis correctly<br><br>have plotted the independent value on the x- axis | Lesson worksheet<br><i>Graphing a line and creating an equation</i><br><br>Tables from previous lesson<br><br>Graph paper             |
| 4 Wednesday (3-09-10)   | Compare/contrast two equations<br><br>Develop an equation<br><br>Make inferences based on the findings<br><br>Rational for their decision | Graph two lines<br><br>Notice point of intersection. Why is it important?<br><br>Can the students decide when each plan is advantageous  | Lesson Worksheet<br><br><i>Graphing two lines on the same plane</i><br><br>Graph paper<br><br>Calculators<br><br>Homework Assignments |

Mathematics/Strand III/Content Standard 1/Middle School

**Benchmark 2**

Organize data using tables, charts, graphs, spreadsheets and databases.

Mathematics/Strand V

**Content Standard 2**

**Algebraic and Analytic Thinking**

Students analyze problems to determine an appropriate process for solution, and use algebraic notations to model or represent problems.

**Overview:**

Mathematical representations allow us to visualize and understand problems. These representations may be numerical, literal, symbolic, graphical, pictorial or physical. Facility with multiple representations of numerical and algebraic concepts and relationships is essential to mathematical competence. This includes the development of “symbol sense” as well as “number sense” and the understanding that the notion of *solution* involves a process as well as a product. Thus, the solution of a mathematical problem requires both an understanding of the question for which an answer is sought and the development of a strategy to obtain that answer. The context of the problem determines the nature and the degree of precision of the required solution.

The increasing use of quantitative methods in all disciplines has made algebra the fundamental tool for mathematical applications. Algebraic thinking is learned most effectively when it is studied in the context of applications, both mathematical and real-world, that reveal the power of algebra to model real problems and to generalize to new situations. Students should use algebraic techniques to analyze and describe relationships, to model problem situations, and to examine the structure of mathematical relationships. The algebra curriculum should employ contemporary technology, including spread sheets and graphical analysis, to emphasize conceptual understanding of algebra and analytic thinking as sophisticated means of representation and as powerful problem-solving tools.

Mathematics/Strand V

**Content Standard 1**

**Operations and their Properties**

Students understand and use various types of operations (e.g., addition, subtraction, multiplication, division) to solve problems.

Mathematics/Strand V/Content Standard 2/Middle School

**Benchmark 1**

Read and write algebraic expressions; develop original examples expressed verbally and algebraically; simplify expressions and translate between verbal and algebraic expressions; and solve linear equations and inequalities.

**Overview:**

Students develop both symbol sense and number sense as they learn to read, to write, and speak the language of mathematics.

Mathematics/Strand V/Content Standard 2/Middle School

**Benchmark 2**

Represent algebraic concepts with geometric models (e.g., algebra tiles), physical models (e.g., balance beam), tables and graphs; and write algebraic expressions to correspond to the multiple representations.

**Overview:**

Mathematical representations, which may be numerical, literal, symbolic, graphical, pictorial or physical, enable students to visualize and understand problems.

Mathematics/Strand V/Content Standard 2/Middle School

**Benchmark 4**

Analyze problems modeled by linear functions, determine strategies for solving the problems and evaluate the adequacy of the solutions in the context of the problems.

**Overview:**

Students learn analytic thinking most effectively when it is studied in the context of problems and applications.

**Benchmark Clarification:**

Since linear functions are useful to everyone in real-world situations, it is important to be able to analyze problems to see what needs to be solved, determine a way to proceed to a solution, and after solving the problem to determine if the answer is reasonable and accurate in light of the context or setting. Strategies, either with or without technology, for solving problems modeled by linear functions includes:

- algebraic procedures,
- graphical displays,
- numerical tables and charts,
- guess and check.

Mathematics/Strand V/Content Standard 2/Middle School

**Benchmark 5**

Explore problems that reflect the contemporary uses of mathematics in significant contexts and use the power of technology and algebraic and analytic reasoning to experience the ways mathematics is used in society.

**Overview:**

Students employ algebraic and analytic thinking and the power of technology to explore problems that reveal the many ways that mathematics is used in a wide variety of contemporary applications.

**Benchmark Clarification:**

Students should explore real-world problems using available technology to enhance their analytical reasoning and extend their understanding of mathematics.

**A.FO.07.13** From applied situations, generate and solve linear equations of the form  $ax + b = c$  and  $ax + b = c x + d$ , and interpret solutions.

**A.FO.08.11** Solve simultaneous linear equations in two variables, by graphing, by substitution and by linear combination; estimate solutions using graphs; include examples with no solutions and infinitely many solutions.

**A.FO.08.13** Set up and solve applied problems involving simultaneous linear equations and linear inequalities.  $3x + 8 = 15$ , by hand for positive integer coefficients less than 20, using calculators otherwise.

**Why are we using Scholastic Magazine for Lesson 1?**

To review plotting points, graphing and coordinate plane. This does this by using appealing, interesting, engaging student centered materials.

**Fun in the Sun**

**Lesson Outcome:**

The students will pick a car rental plan and use problem-solving strategies to interpret the data and justify their answers.

**Rationale:**

We want our study to be better problem solvers and be able to use mathematical reasoning in order to justify their answers. We want our students to resourceful problem solvers, confident, and educated consumers.

**Anticipatory Set:**

7 to 8 groups with 4 to 5 students in each group.

**Eric's Lesson:**

He started his lesson by having a student answer his cell phone as it rang at the beginning of the hour. The woman on the line was confirming his reservation for 36 seats on a flight to Orlando for Spring Break. The student was then asked to report what she heard to the class.

Due to nerves, this message did not have the desired impact. Eric then paraphrased the message to the class and posed the question regarding the rental car dilemma. Eric explained that the class would need a rental car while in Florida and two plans were presented. The two scenarios were given and the students were to choose the best plan.

Students were told they were to present their findings to the class by the end of the hour, using the available materials.

### **Observing and planning the lesson:**

After Eric's lesson, we agreed that it was successful. Students responded in a table and/or graph form to report out their findings. Eric then led the students in the direction of finding the equation, the "cheating" form answering the questions. Students had a very good understanding of intervals, break-even points, table creation, and transformation to a graph. The students also demonstrated an understanding of which plan was best to use.

### **Decisions Made after the First Lesson:**

1. Provide each student with a calculator. We noticed in Eric's lesson that with having only one calculator, not every student was involved. Also, it became an issue based on time.
2. Changed hook of lesson. By using a speaker phone, every student heard the message simultaneously, getting everyone involved and excited. After observing Eric's lesson, where only one student heard the message, we felt that this would be more effective. Antoinette left a voice mail message prior to the class, posing as a representative from Northwest Airlines confirming the reservation for 32 seats.
3. The problem was to read to class. By doing this, we hoped to get the students on task sooner. In Eric's class, the students took too long to read and understand the objective.
4. Students were directed to sketch a quick draft of visuals. Due to time constraints in Eric's lesson, students did not have the time to create a detailed presentation.
5. Redirect students back to original questions as part of the closure. During Eric's lesson, the students' focus was on the break-even point not which was the better buy.



## Fun In The Sun

The Green family is planning a one-week vacation in Florida and needs to rent a car while there. They researched and found the following options.

|                        |                                       |
|------------------------|---------------------------------------|
| Hunk a Junk Car Rental | \$330 a week and unlimited mileage.   |
| Rusty Rentals          | \$219 a week, plus 12 cents per mile. |

The Greens don't know exactly how far they will drive but estimate that it will be **between** 800 and 1200 miles. They must decide which plan to choose.

1. Considering the two plans, under which conditions should the NEWCOMB family choose Hunk a Junk Car Rental? Explain your answer.
  
2. Considering the two plans, under what conditions should the NEWCOMB family choose Rusty Rentals? Explain your answer.

| <b>Teacher Activity</b><br>REVISED   | <b>Anticipated Student Thinking and Activities</b> | <b>Points to Notice</b>   | <b>Materials and Strategies</b>     |
|--|--|---|-------------------------------------|
| <p><b>Introduction:</b></p> <p><b>Lesson Focus:</b> “I’ve been keeping something from you. I entered our class in a contest a few months ago and I think we won. I received a voicemail message yesterday and I want you to listen to it.” (Stacey play message on speakerphone)<br/>           “So, when we arrive, we are going to need a way to get around town. We need to rent a car. I researched rental car companies last night and come up with this.” (Stacey shows overhead of Fun in the Sun)</p> <p>Read class the problems and STRESS to the students, miles traveled <b>between</b> 800 and 1200 miles.</p> <p>“All the supplies you should need are on your table. If you need more, please see me.”</p> | <p>Students are in groups.</p>                     | <p>Are the students interested in the topic?</p> <p>Are the students participating in the introduction piece?</p> | <p>Name tags and table numbers.</p> |

| <b>Teacher Activity<br/>REVISED</b>  | <b>Anticipated Student<br/>Thinking and Activities</b>  | <b>Points to Notice</b>  | <b>Materials and<br/>Strategies</b>  |
|--|---|--|--|
| <p><b>Beginning of the lesson:</b></p> <p>After going over the problem and the student which car rental plan will they choose?</p> <p>Direct students to recall previous lessons and methods used to answer,</p> <p>Inform the students that each group will need to complete the task in a half hour.</p> | <p>Each group will receive the lab sheet, graph paper, markers, pencils, and rulers.</p> <p>Students will talk about how to begin.</p> <p>Students might recall lessons from previous days.</p> <p>The students will reread the questions.</p> <p>The students will automatically choose plan A because of the unlimited mileage or they may choose plan B because it is cheaper.</p> | <p>Is there substantial conversation before choosing a plan?</p> <p>Did the students read the directions and the questions properly?</p> <p>Is everyone in the group participating?</p> <p>Did the students realize 12 cents as .12 or 12 cents per mile?</p> <p>Are they organizing and using the given materials</p> | <p>Student supplies.</p> <p>Are they using the graph paper?</p> <p>Students will use a basic calculator to do simple operations.</p> |

| <b>Teacher Activity<br/>REVISED</b>  | Anticipated Student<br>Thinking and Activities  | Points to Notice   | Materials and<br>Strategies |
|--|---|--|-----------------------------|
| <p><b>First half of the lesson:</b></p> <p>The teacher will be walking around the room and monitoring the process of each group.</p> <p>The teacher may have to prompt a group or ask questions to focus the group.</p> <p>Such as:</p> <p>Where should you begin?</p> <p>Do you recall the previous lessons?</p> <p>What data is important to use when solving the problem?</p> <p>If the students are off on a tangent, the teacher may ask the students, “Are you answering the question?” or “Will you be ready to present in _____ minutes?”</p> <p>The teacher may have to restate or reword the directions.</p> <p>The teacher will observe and determine how to refocus the group.</p> <p>The teacher may have to prompt the group to think about, “What will happen if your family drives 980 miles?”</p> | <p>The students will be calculating both plans; noticing the constant of Hunk-a-Junk.</p> <p>The students will be creating a table, graph or both to solve the problem.</p> <p>Interpreting what the unlimited miles will be.</p> <p>The students are only using 800 miles and 1200 miles.</p> <p>They are thinking about the miles between 800 and 1200.</p> | <p>How are they organizing the information?</p> <p>Are they communicating mathematically?</p> <p>Are they settling for their first answer?</p> <p>Do the students realize that there is more than one answer?</p> <p>Is the group working together to solve the problem the same way?</p> <p>What values/increments does the group start their table or graph?</p> <p>Are the students attempting to write the equation?</p> |                             |

| <b>Teacher Activity<br/>REVISED</b>  | <b>Anticipated Student<br/>Thinking and Activities</b>  | <b>Points to Notice</b>  | <b>Materials and<br/>Strategies</b> |
|--|---|--|-------------------------------------|
| <p><b>Second Half of the Lesson:</b></p> <p>The first plan deliberately costs \$330.00, so the students who choose to use guess and check method may get the exact answer of when both plan will cost the same amount.</p> <p>The teacher will be looking at each group's results to determine the progression of thinking and how to display their results.</p> | <p>The students realize the costs of each plan are very close between 900 and 950 miles. They will narrow the miles down to 925 miles, and find out both plans will cost the same.</p> <p>Do the students accept the fact that both plans will be cost effective depending on the number of miles driven?</p> <p>The students work will be displayed in the following order:</p> <ol style="list-style-type: none"> <li>1. Guess and Check</li> <li>2. Tables</li> <li>3. Tables and Graph</li> <li>4. Tables, Graph, and equation</li> </ol> | <p>When the groups finish answering the questions, they will decide how they will report their findings.</p> |                                     |

| <b>Teacher Activity</b><br><b>REVISED</b>   | Anticipated Student Thinking and Activities   | Points to Notice  | Materials and Strategies  |
|---|---|---|---|
| <p><b>Conclusion of the Lesson:</b><br/>           The teacher will pose the question, "What can you tell me about your graph?"<br/>           "Which plan did you choose and why?" so the reporter of the group will know what the teacher is observing.</p> <p>The teacher will pose the following questions for each strategy:</p> <p><b>Guess and Check:</b><br/>           How long did this method take?<br/>           Why did you choose these numbers?<br/>           Did you try any other numbers?<br/>           How did you get the correct answer?</p> <p><b>Tables:</b> Why did you start with these values?<br/>           How did you organize your table?</p> <p><b>Graphs and Tables:</b><br/>           (Just graph): How did you come up with the graph?<br/>           Why would you make a graph?</p> <p><b>Equation:</b> How did you get the equation?<br/>           Under what circumstances would it help answer the question?</p> | <p>Is our answer consistent with the other groups?</p> <p>Did my group answer the question?</p> <p>Is our method as good as the other groups?</p> | <p>Is the class listening as each group is reporting?</p> <p>Are groups rethinking how to report out there findings based on what they are hearing?</p> <p>Are students questioning the presenter?</p> <p>Is the presenter clearly stating their finding?</p> | <p>Compliment students on a good job.</p> <p>Restate the fact that all groups answered the question in more than one way. In math there are many times where there is more than one way to answer a question. No one way is correct.</p> <p>Why did I (the teacher) post the findings in this order? What is the reasoning?</p> <p>Do you see any practical applications of what we just did?</p> <p>Discuss with the students the time that was spent for each method. Since, most times, we are looking for a short cut, the equation would be the fastest way to get the answer.</p> |

**Follow Up/Evaluation:**

Display graphs and ask students to compare them regarding axes, intervals, arrows, etc. Stress the importance of finding the equation. Connect this to how the technology of graphing calculators can enhance the lesson.

1. Were the students able to see the connection between the table, graph, and the equation?
2. Were our students able to demonstrate knowledge of which plan was more cost effective under given conditions?
3. Did the students display qualities of educated consumers while considering the situation?
4. While working in cooperative learning groups, did the students display confidence in their abilities to problem solve?

**Teacher:** \_\_\_\_\_

**Grade Level:** \_\_\_\_\_

**Subject:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Lesson Objective: Interpreting information using Algebra**

| Items to Observe  | Student observed behaviors | Teacher observed behaviors |
|---|----------------------------|----------------------------|
| Are students speaking mathematically?<br>(Examples)                           |                            |                            |
| Is every student contributing and is every student being heard?<br>(Examples) |                            |                            |

**Teacher:** \_\_\_\_\_

**Grade Level:** \_\_\_\_\_

**Subject:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Lesson Objective: Interpreting information using Algebra**

| Items to Observe  | Student observed behaviors | Teacher observed behaviors |
|---|----------------------------|----------------------------|
| Do the students seem engaged or interested in the problem?<br><br>(Examples)          |                            |                            |
| What materials are being used and how are the materials being used?<br><br>(Examples) |                            |                            |

**Teacher:** \_\_\_\_\_

**Grade Level:** \_\_\_\_\_

**Subject:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Lesson Objective: Interpreting information using Algebra**

| Items to Observe   | Student observed behaviors | Teacher observed behaviors |
|--|----------------------------|----------------------------|
| Are the groups using the time effectively?<br>(Examples) |                            |                            |
| Other<br>(Examples)                                      |                            |                            |

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

## Lesson 2: Creating a Table

You have saved \$65.00 at the beginning of the year. You plan on buying a PS3 system for \$299 plus 6% sales tax. You plan on saving \$30.00 each week. How many weeks will you need to save money?

### **Check Your Progress:**

1. How much money will you have saved after 3 weeks?
2. In how many weeks will you have approximately \$200?

You have \$12.00 in your pocket and you're going to the carnival with your friends. You pay \$5.00 to get into the carnival and it cost 75 cents per ride. How many ride tickets can you purchase?

### **Check Your Progress:**

1. You have \$3.25 in your pocket, how many ride tickets did you purchase?
2. How much money will you have spent after purchasing 4 tickets?

The Dare to Watch DVD online rental company is offering a July special. You pay a one time membership fee of \$30.00 and \$1.50 for each DVD you order. You rent a movie each day in July, what is your total cost for the month?

### **Check Your Progress:**

1. How many DVD's did you rent after spending \$55.50?
2. How much did you spend after renting 6 DVD's?

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

### Lesson 3: Graphing a Line and Creating an Equation

You have saved \$65.00 at the beginning of the year. You plan on buying a PS3 system for \$299 plus 6% sales tax. You plan on saving \$30.00 each week. How many weeks will you need to save money?

#### Check Your Progress:

1. How much money will you have saved after 0 weeks?
2. How much money are you saving each week?
3. Develop an equation to represent this situation.  $y = \underline{\hspace{2cm}} x + \underline{\hspace{2cm}}$

You have \$12.00 in your pocket and you're going to the carnival with your friends. You pay \$5.00 to get into the carnival and it cost 75 cents per ride. How many ride tickets can you purchase?

#### Check Your Progress:

1. How much money will you have in your pocket after purchasing 0 tickets?
2. How much is each ticket?
3. Develop an equation to represent this situation.  $y = \underline{\hspace{2cm}} x + \underline{\hspace{2cm}}$

The Dare to Watch DVD online rental company is offering a July special. You pay a one time membership fee of \$30.00 and \$1.50 for each DVD you order. You rent a movie each day in July, what is your total cost for the month?

#### Check Your Progress:

1. How much money did you spend if you do not rent any DVD's?
2. How much does it cost to rent each DVD?
3. Develop an equation to represent this situation.  $y = \underline{\hspace{2cm}} x + \underline{\hspace{2cm}}$

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

#### Lesson 4: Graphing Two Lines On The Same Plane

You are looking into purchasing a cell phone package that includes a free basic phone and the cost per minute. The plans are listed below.

|                  |  |
|------------------|--|
| Cell Phones R Us | \$19.95 monthly service fee, plus 10 cents per minute. |
| Phone Giant      | No service fee, plus 15 cents per minute.              |

1. Which plan would you choose and explain your reason.
2. If you use 100 minutes, 250 minutes, and 500 minutes, which plan would you purchase? Justify your answer.
3. Approximately how many minutes will need to be used for both plans to be equal?
4. Develop an equation in the  $y = mx + b$  format for each plan.
5. Based on your findings in questions 2 – 4, which plan would you choose and justify your answer.

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

### Lesson 4B: Assignment: Graphing Two Lines On The Same Plane

Carlos enjoys renting movies. The local video store offers two pricing plans to its customers as shown below.

|        |  |
|--------|--|
| Plan A | Each video rental is \$2.50.                         |
| Plan B | Monthly service fee of \$7.00, plus \$.75 per video. |

1. Which plan would you choose and explain your reason.
2. If you rent 2 videos, 4 videos, 6 videos, or 8 videos, which plan would you purchase? Justify your answer.
3. How many videos do you need to rent for both plans to be equal?
4. Develop an equation in the  $y = mx + b$  format for each plan.
5. Based on your findings in questions 2 – 4, which plan would you choose and justify your answer.