1. a) Make a table of values for the toothpick pattern.

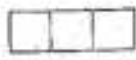Figure 1   Figure 2   Figure 3

b) Describe the pattern.

c) Develop an expression relating the number of toothpicks to the figure number.

d) How many toothpicks are in Figure 10? Verify your answer.

e) How do the numerical values in the expression represent the pattern?

2. Derek has $1560 in his bank account. He plans to withdraw $15 every week for a year.

a) Create a table of values for his first five withdrawals.

b) What equation models this situation?

c) How much money will Derek have in his account after 35 weeks?

d) How long will it take until he has $870 left in his account?

3. Taylor works at a shoe store. She makes $75 per day plus $2 for every pair of shoes she sells.

a) Create a table of values to show how much she would earn for selling up to 10 pairs of shoes in one day.

b) Develop an equation to model this situation.

c) How much money will Taylor make in a day if she sells 12 pairs of shoes?

4. The equation $C = 40 + 20d$ models the cost of renting a snowboard, where C is the rental cost, in dollars, and d is the number of rental days.

a) What does the value of 40 represent?

b) Graph the linear relation for the first 5 days.

c) From the graph, what is the approximate cost of renting the snowboard for 1 day? 7 days?

d) If buying a snowboard costs $300, use your graph to approximate how many days you could rent a board before it becomes cheaper to buy it.

5. Graph the linear relation represented in the table of values.

Time (h)	Distance (km)
1	52
2	104
3	156
4	208
5	260
6	312

a) Describe a situation that might lead to these data.

b) Develop a linear equation to model the data.

c) What do the numerical coefficients and constants in the equation tell you?

6. A parking lot charges a flat rate of $3 and $2 for each hour or part of an hour of parking.

a) Create a table of values for the first 8 h of parking.

b) Graph the linear relation.

c) Use the graph to approximate how much it would cost to park for 4 h.

d) Using the graph, approximately how long could you park if you had $15?

e) What equation models this situation?