

## Discounts

A discount card at a movie theater costs \$10. With that card, it only costs \$3 to attend a movie, instead of \$5. The card is valid for three months.

1. Use the same pair of axes for both of the graphs in this problem. Make a graph of the *total cost* (including the cost of the discount card if you got one) as a function of the *number of movies* you see:
  - a. if you have the discount card.
  - b. if you do not have the discount card.
2. What is the total cost of seeing  $n$  movies in three months
  - a. with the discount card?
  - b. without the discount card?
3.
  - a. Which of those two choices is a proportional relationship?
  - b. **Bonus:** Can you think of another situation involving money that is a proportional relationship?
4.
  - a. If you saw 12 movies in three months, how much would you save by buying the discount card?
  - b. If you saw only 2 movies in three months, how much would you save by *not* buying the discount card?
5. What is the break-even point; that is, how many movies would you have to see in order to spend exactly the same amount with and without the discount card?
6. How would your decision be affected if the cost of the discount card were raised to \$12?
7. **Challenge:** How would your decision be affected if the cost of the discount card were changed to \$ $D$ ?