Carnival T-Shirts

Unit Two

1. Ridley is planning a carnival for its residents. Design a logo for the carnival to be used on the T-shirts as well as on other promotional materials. The logo might include the name of the school or a message of some sort. It could be an abstract design or a picture of something related to the carnival. It can be whimsical or serious. Be creative! The only requirement is that the logo must be symmetrical in some way.
   1. Describe the symmetry shown in your logo.
   2. Briefly explain why you chose your particular design and explain its meaning.
2. The price list for a T-shirt shop is shown below.

Midwest Athletic Supply and Screen Printing

Set-up Art

$17.50 for one color $25 per hour

$12.50 for each additional color

T-Shirts

Prices for T-Shirts with one color:

1 – 15 $6.55 each 63-147 $5.75 each

16 – 31 $6.25 each 148 or more $5.40 each

32 – 62 $5.95 each

* 1. Suppose you decide to go with a deluxe four-color design that require two hours of artwork from the shop’s designers. Complete a table like the one below.

|  |  |  |
| --- | --- | --- |
| **Cost of Four-Color T-Shirts** | | |
| **Number of T-Shirts Purchased** |  | **Total Cost** |
| 1 |  |  |
| 10 |  |  |
| 100 |  |  |
| 200 |  |  |
| 201 |  |  |
| 202 |  |  |

* 1. Suppose that you buy more than 150 T-shirts. Using NOW for the cost to buy a given number of shirts and NEXT for the cost to buy one more, write an equation showing the relationship between NOW and NEXT.
  2. Using *t* for the number of t-shirts purchased and *C* for the total cost, write an equation showing the relationship between t and *C* for any number *t* > 150.

1. You plan to sell the t-shirts and make a profit. What price should you set for the shirts? Write a brief analysis justifying your choice of selling price. Your analysis should include the following:

* An equation and graph showing the relationship between profit *P* and number of t-shirts sold *t*, where *t* >150
* An explanation of how to use the profit equation and graph to find the number of shirts you must sell to break even
* An estimate of the profit you expect to make
* A summary of why you chose your selling price

Rubric: 50 points

* On time/Neatness 5 points
* Logo with symmetry 5 points
* Explanation of design 5 points
* Table of Costs 8 points
* Now-Next Equation 5 points
* Rule 5 points
* T-shirt price with equation 5 points
* Break even point and explanation 7 points
* Estimated profit and explanation 4 points
* Explanation of selling price 3 points