

Dear Mrs.Prior

After looking at the offers from the two companies, we would advise that you use the Keurig system for your coffee station. While the initial investment is higher, over the course of 180 school days it will be cheaper to have the Keurig system. Dunkin Donuts offered to deliver \$9.90 boxes of coffee every morning which would give 10 cups of coffee at a cost per day of \$9.90. Keurig offered to rent the school an industrial brewer for \$249.95 for the school year, and the bulk packs of K-cups cost \$62.00 and give 80 cups of coffee at a cost of \$7.80 per day. The cost per day for the keurig was determined by the cost of each individual K-cup multiplied by 10 cups of coffee. The reason it is multiplied by 10 cups is because that is the number of cups per day that we are comparing the two plans at. At \$62.00 per box, divided by 80 cups in a box, each cup costs \$0.775 which for monetary purposes is rounded to \$0.78. And that is why the Keurig would cost \$7.80 per day. We estimate that the teachers would consume 10 cups of coffee per day. There are 15 people in the math department, a few do not drink coffee and a few do not drink Dunkin Donuts coffee, so we figure that 10 is a good number so that we can compare the two plans side by side with cost per day. That is the reason that we would only be buying 1 box of dunkin donuts coffee, and would be able to use 10 K-cups per day.

Amy Marie Prior 1/11/14 6:11 AM

Comment: Good introduction

Amy Marie Prior 1/11/14 6:12 AM

Comment: Good- you stated thoughtful assumptions

Using this information we came up with two equations. Here "Y" represents cost, and "X" represents number of days.

Keurig: $Y = 249.95 + 7.80X$

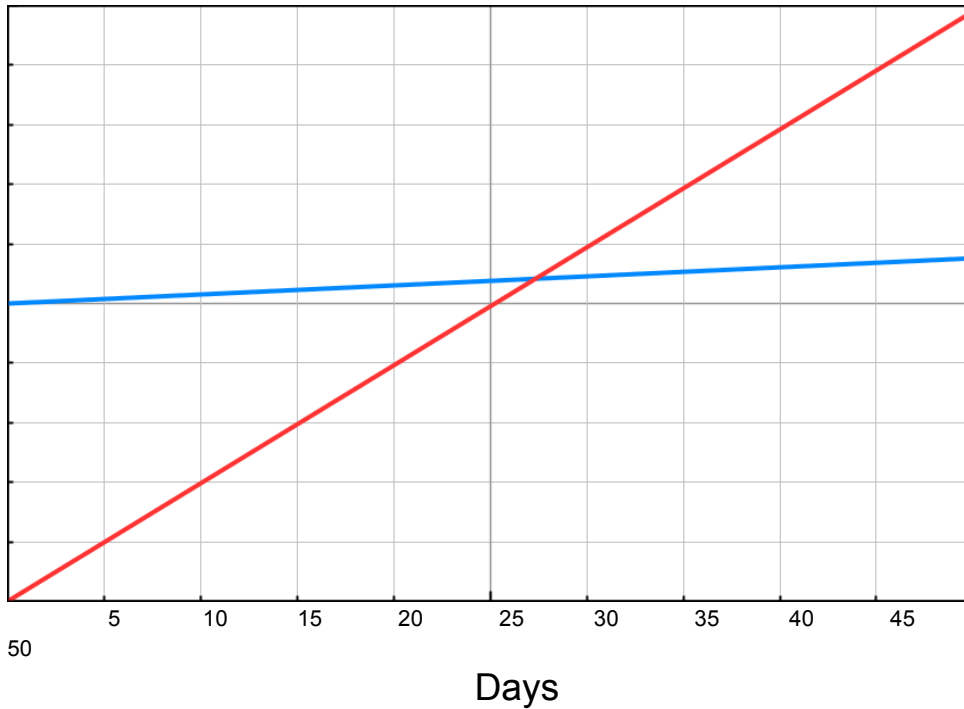
DD: $Y = 9.90X$

The Keurig equation shows the initial cost of \$249.95 plus the \$7.80 cost per day multiplied by "x" which represents number of days.

Amy Marie Prior 1/11/14 6:13 AM

Comment: Oops! \$7.80

The Dunkin Donuts equation shows the cost per day of \$9.90 multiplied by the number of days represented by "x"



- * Each box on the Y-axis represents \$50
- * Red Line is Dunkin Donuts
- * Blue Line is Keurig

We graphed both equations on the graph. They were both in $y=mx+b$ form. On this graph the X axis is the number of days and the Y axis is the total cost. The total cost is the dependant variable at that is why it is on the Y axis, and Days is the independent variable and that is why it is on the X axis.

After graphing the two equations, we determined at 27 days, the total costs would be equal. Before 27 days Dunkin Donuts would be cheaper, and in the long run for the whole school year it would be cheaper to use the keurig system. And that is why we would recommend the keurig system.

Amy Marie Prior 1/11/14 6:16 AM
Comment: Your system of equation is correct and makes sense; however, your solution is not correct. The lines actually intersect at appx. 119 days.

Amy Marie Prior 1/11/14 6:16 AM
Comment: You conclusion does support your math.