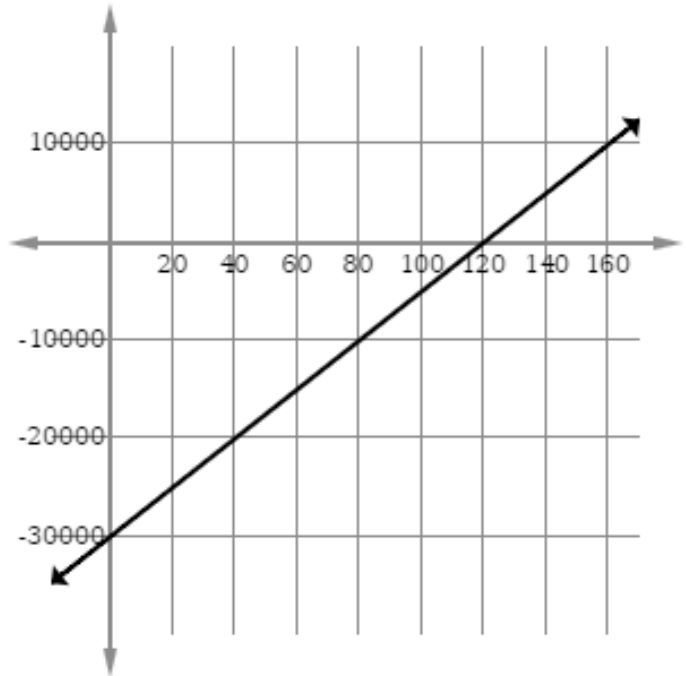


1. **Mr. Solarton bought a new set of solar panels for his house. The solar panels cost \$30,000 to purchase and install. Mr. Solarton will save \$250 per month on his electric bill from the panels.**

a) Label **both** axis on the graph (including units).

b) What will Mr. Solarton’s profit be after 0 months, 40 months, 80 months, 120 months, and 160 months? (use the table)

time (months)	Profit (dollars)
0	
40	
80	
120	
160	



c) How many **months** will it take for Mr. Solarton to earn back his initial investment (when will he “break even”)?

d) How many **YEARS** will it take for Mr. Solarton to earn back his initial investment?

e) What would a good variable be for time (months)?

f) What is the slope of the graph? What does the slope of the graph represent in the context of the problem?

g) What is the y-intercept of the graph (as a coordinate)? What does the y-intercept represent in the context of the problem?

h) Write an equation (in slope-intercept form) which models the scenario above.

What would a good variable be for Profit (dollars)?

i) Based on the graph and model above, do you think it is worth it to buy solar panels? Why or why not?

2. Mrs. Painterton paints houses. She charges an initial fee of \$500 plus \$25 per hour to paint a house.

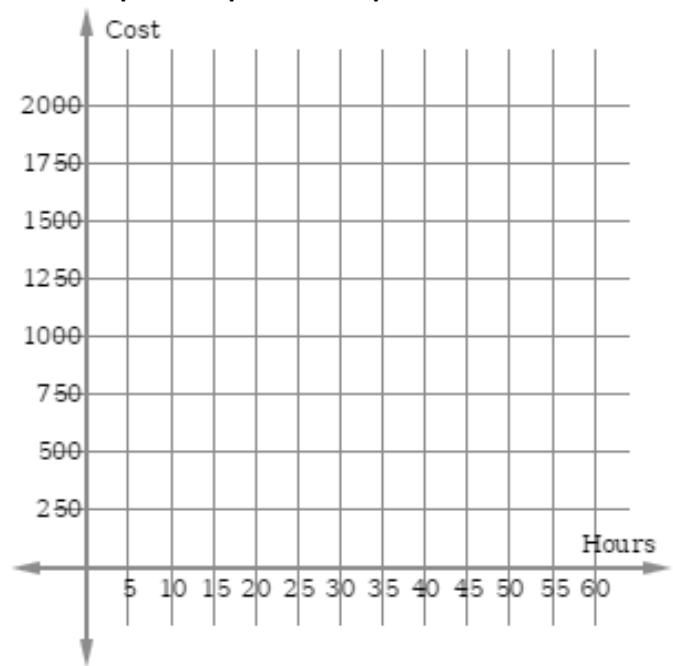
a) What is the **rate of change (slope)** in this problem? Justify.

b) What is the **constant** in this problem? Justify.

c) What would be a good variable for time (hours)?

d) What would be a good variable for Cost (dollars)?

e) Write an equation (in slope-intercept form) which models the problem.



f) Fill in the table below.

time (hours)	Cost (dollars)
0	
10	
20	
30	
40	

g) Graph your equation on the given coordinate plan.

h) Mrs. Painterton works 5 hours a day for 8 days to finish painting the house. How much will it cost to have Mrs. Painterton pain the house?

Mr. Behrington offers to paint the house for an initial fee of \$800 plus \$10 per hour.

i) Write an equation (in slope-intercept form) which models the cost for Mr. Behrington to paint a house.

j) Graph Mr. Behrington's equation on the same coordinate plane as Mrs. Painterton's equation.

k) Who would you rather have paint the house for a 10 hour job?...20 hour job?...30 hour job? Justify your answer.

Write the equation of a linear model for each scenario below.

3. Dylan is saving up to attend an anime convention. Dylan already has \$70 saved and earns \$15 an hour working construction for his dad.

4. Miriam went trick or treating and earned 130 pieces of candy. Miriam eats 5 pieces of candy per day.

5. Corinne's grandmother is trying to sell off her creepy porcelain doll collection. Her grandmother has 112 dolls and sells 4 dolls per day.