

Module 3 Project: Planning Your Vacation

After you pass Algebra 1, your teacher will pay for you and one other person to go on a dream vacation. You will explore both vacations to figure out which one will be the best for your teacher to send you on.

- Choice 1 is going to the island of Maui, in Hawaii.
- Choice 2 is a tour of Europe.

Travel expenses are free because of your teacher's mileage and hotel bonuses, but it will cost to eat every day. Your expenses will be totaled up and paid for by your teacher as well! Because everything will be pre-paid, even if you don't go your teacher will still have to pay for your expenses.

Maui Expenses

Food Cost in Maui

\$30 per day

Snorkel Gear	Surfing Lessons	Helicopter Tour	Authentic Luau	Total Expenses
\$50	\$150	\$300	\$100	\$600

You will write an equation for the cost of this trip, to help your teacher. Also recognize that your expenses will be prepaid before you leave for the trip.

Independent Variable, x , will represent...	Number of days
Dependent Variable, y , will represent...	cost
Rate of change	\$30/day (food)
Initial Value	\$600 (gear, lessons, helicopter, luau)
Equation	$Y = \$30x + \600

Europe Expenses

Food Cost in Europe

\$40 per day

Various Tours

\$450

Gondola Ride in Venice

\$50

Total Expenses

\$500

You will write an equation for the cost of this trip, to help your teacher. Also recognize that your expenses will be prepaid before you leave for the trip.

Independent Variable, x , will represent...

Number of days

Dependent Variable, y , will represent...

cost

Rate of change

\$40

Initial Value

\$500

Equation

$Y = \$40x + \500

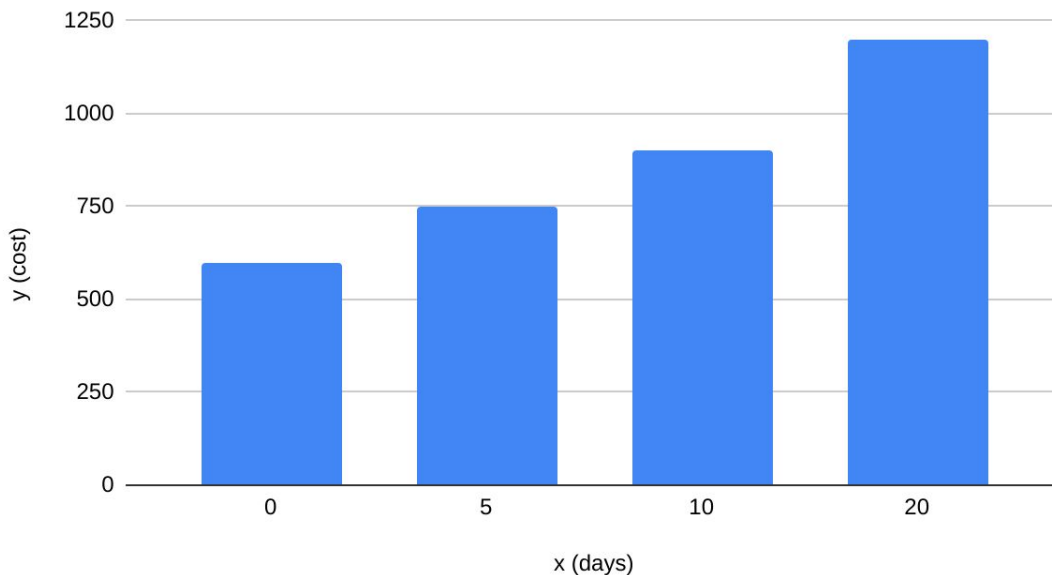
Hawaii Cost

Fill out the table according to your equation, and then upload a screenshot of a [graph](#) with those points indicated on the graph.

x	y
0	600
5	750
10	900
20	1200

$$Y = \$30x + \$600$$

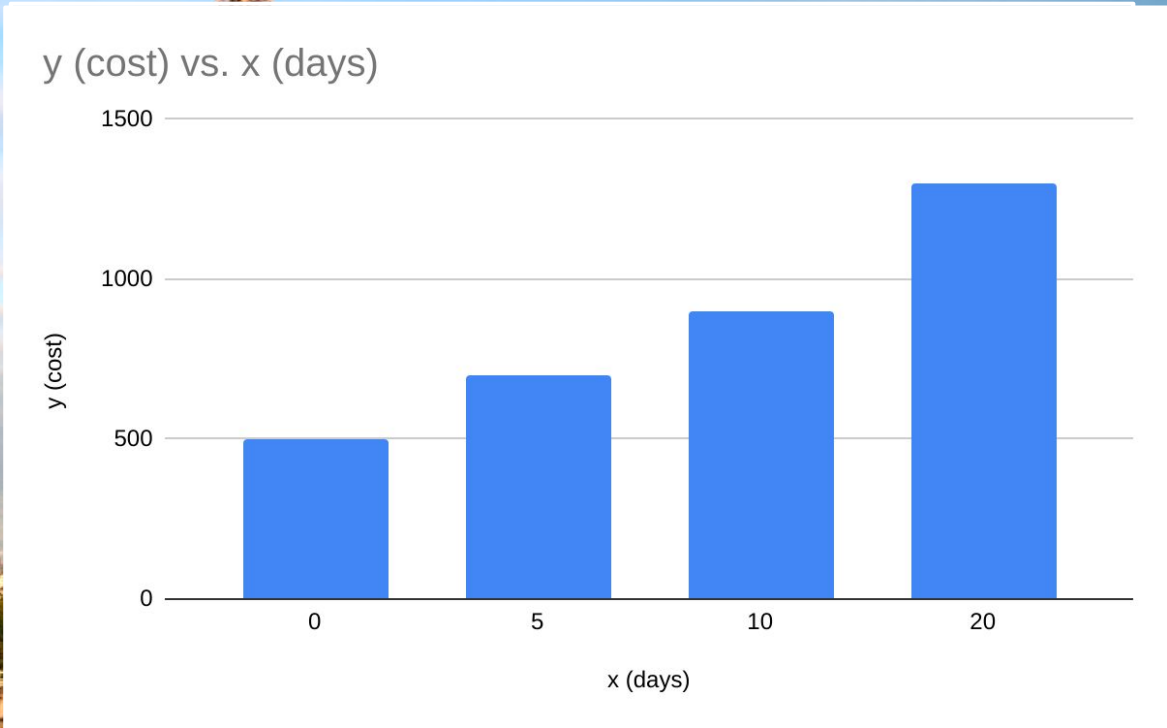
y (cost) vs. x (days)



Europe Cost

Fill out the table according to your equation, and then upload a screenshot of a [graph](#) with those points indicated on the graph.

<i>x (days)</i>	<i>y (cost)</i>
0	500
5	700
10	900
20	1300



$$Y = \$40x + \$500$$

Comparing Trips

Fill out the table according to your findings on the last two slides

Which is the cheapest vacation after 5 days?

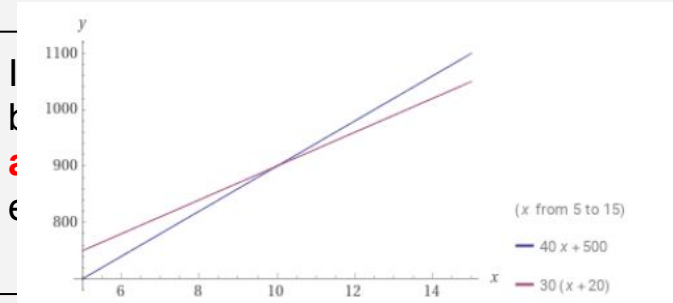
Europe (5 days) = \$700 Europe is cheaper.

Hawaii (5 days) = \$750.

Which is the cheapest vacation after 20 days?

Europe (20 days) = \$1300

Hawaii (20 days) = \$1200. Hawaii is cheaper at 20 days.



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Europe: $Y = 40x + 500$

Hawaii: $Y = 30x + 600$

Costs are equal at the solution of $40x + 500 = 30x + 600$
 $10x = 100$; $x = 10$. Know same because two non-parallel lines must cross.

Why is one trip cheaper up to a point, and then the other one is? **Explain** in 2-3 full sentences.

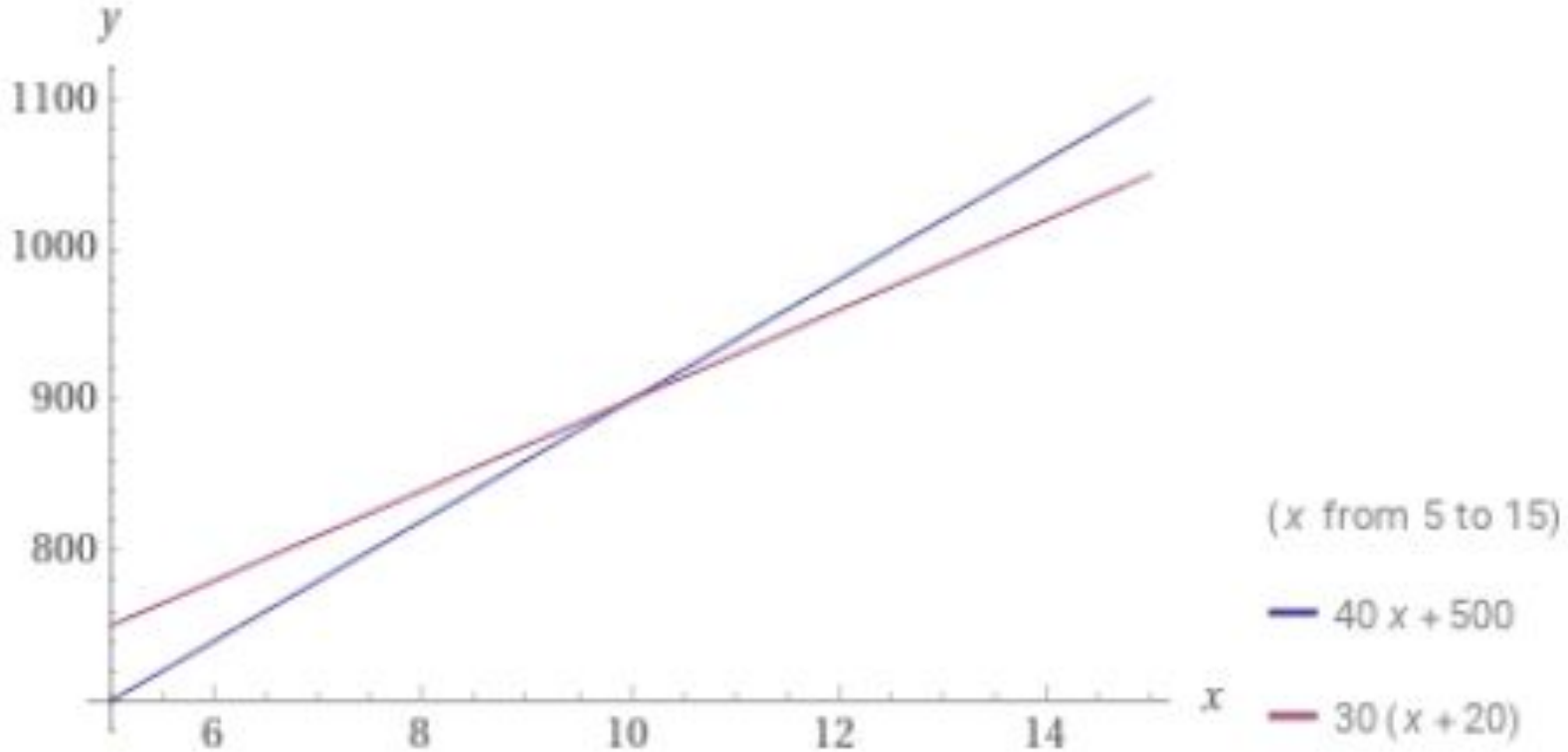
Europe is cheaper before the 10th day. On the 10th day, the cost of both trips is equal. The cost function lines cross. After the 10th day, the Hawaiian trip is less expensive.

If you had to cancel your trip before you left, how much would your teacher have paid for each trip still? What does this represent?

If you didn't go on the trip, the daily food cost would be zero. The initial cost of \$500 for the Europe trip and \$600 for the Hawaii trip (the y-intercept, initial value) would still be paid.

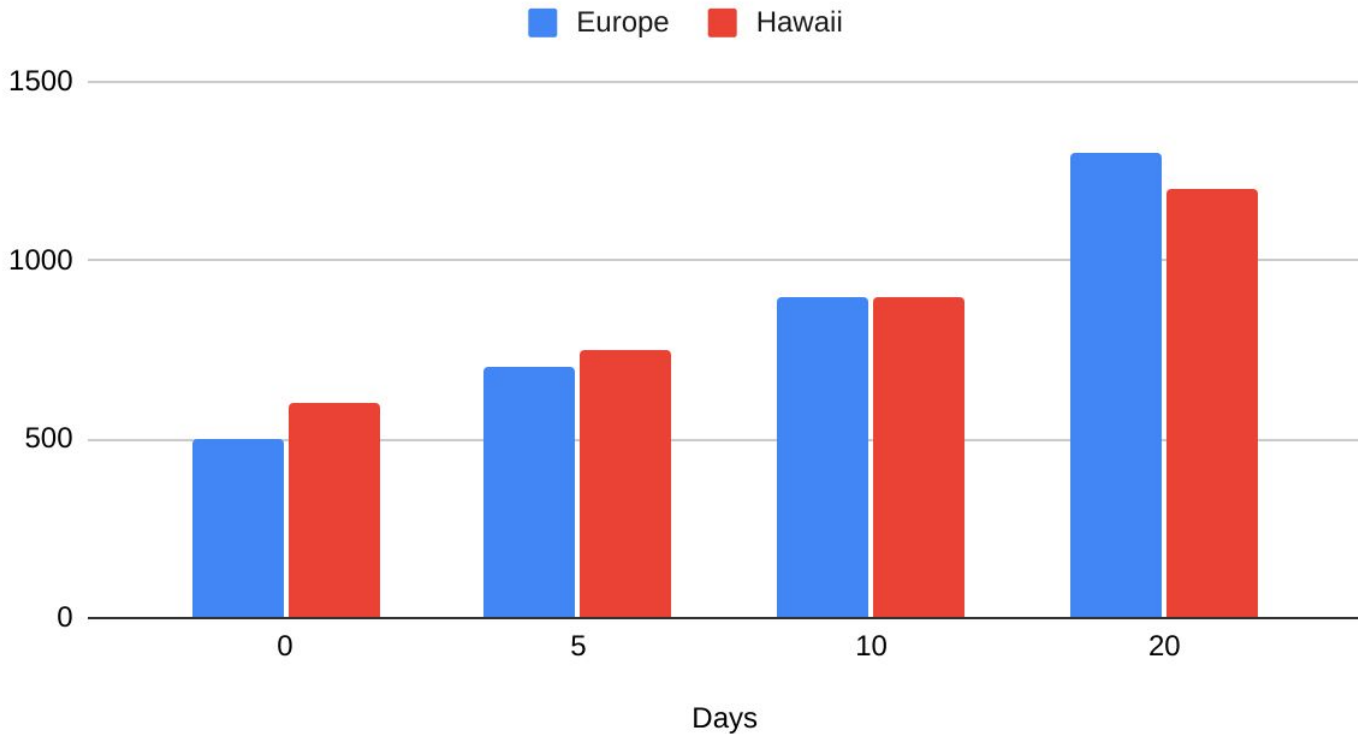
Comparing Trips

Fill out the table according to your findings on the last two slides



Comparing Trips

Europe and Hawaii



Honors Only

In Europe, you choose to upgrade your car to a high-end sports car, and this expense has been added on to the total cost. The added costs are the fee for each day of the car and a mandatory insurance fee paid before you may drive the car.

If the total cost of your Europe trip now is \$1200 for 10 days, and \$1750 for 20 days - **show all work** to find the **cost per day** of the car, **and** the **cost of the insurance**.

Upload work on next slide.

Use the skills we've learned in Module 3 to do this and upload your work on the next page.

Honors Work Page

Upload the screenshot of your work here. You can use [this jamboard](#), page 2.

