Asha receives $10 000.

Asha keeps **half** his money and gives **the rest** to Bertha.

Bertha keeps **half** her money and gives **the rest** to Calvin.

Calvin keeps **half** his money and gives **the rest** to Dane. Dane keeps **half** his money and gives **the rest** to Evanna.

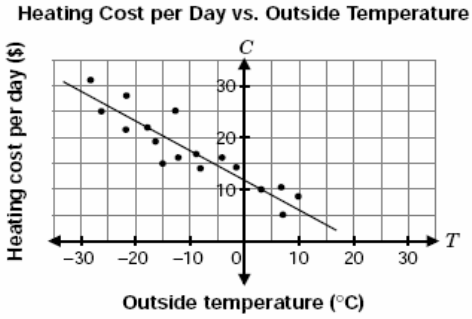
Write an expression to show the dollar amount of money that **Evanna** receives from Dane?

If $x = 3$, what is the value of $2x^2 + 5x$?

The cost, *C,* in dollars to print *n* leaflets is given by the formula
$C = 25 + 0.02n.$

What is the cost of printing 800 leaflets?

Duncan records the outside temperature at noon each day. He also records the heating cost per day. The graph shows a scatter plot and a line of best fit for his data. By approximately how much does the heating cost per day **decrease** when the outside temperature increases **by 5°**?

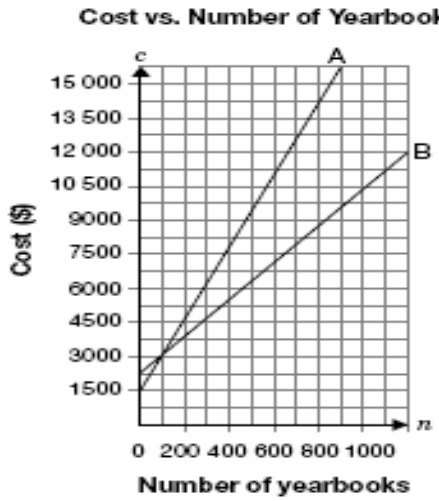


A student council is selling tickets to a video dance for $5 each. The cost of the disc jockey and the equipment is $1200.

Determine an equation to represent the relationship between the profit in dollars made by the student council and the number of tickets sold.

Wind speed (km/h)	Temperature (°C)
0	−20
10	−25
20	−35
30	−50

Determine whether the table of values, above, demonstrates a linear or non-linear relationship.



Determine the fixed set-up cost and cost per book for each company.

How many of these equations represent straight lines?

$y = x - 2$
$y = 2 - 4x$
$y = x^2 + 8$

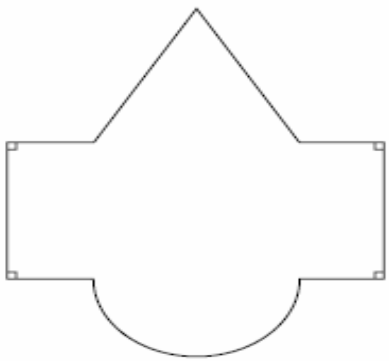
Rearrange 4y-x=8 so that it is in the form y=mx+b

What is the equation of the line that passes through the point (2, 0) and is parallel to the line $y = -3x + 4$?

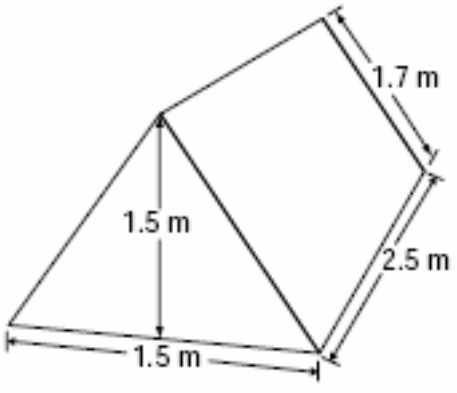
The equations $y = -x - 5$ and $y = 3$ represent straight lines that intersect.

In which quadrant do they intersect?

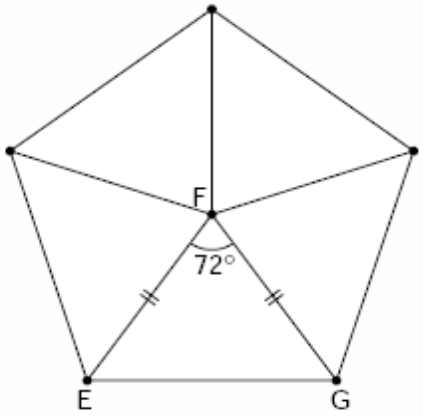
The floor plan of the lobby of a hotel is shown below. Which formulas will be useful to in determining the area of the lobby.



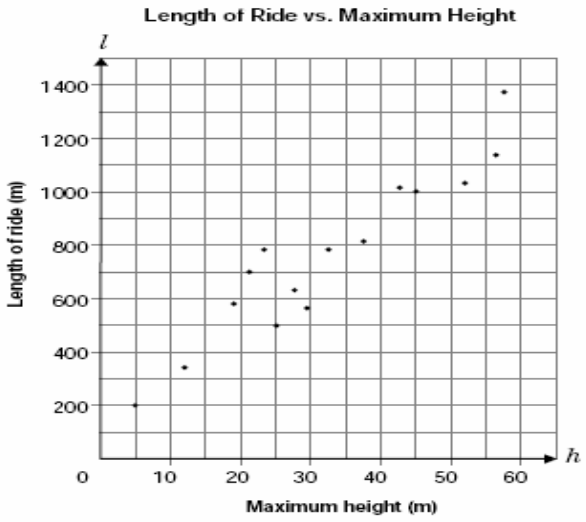
Determine the surface area of the tent, including the ends and floor



Examine the figure below.

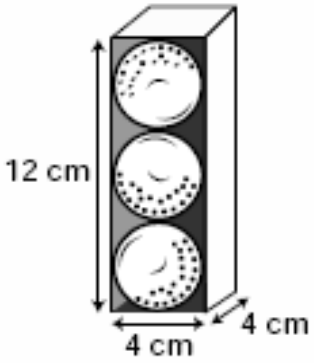


What is the measure of ∠FEG?



Determine the equation of the line of best fit.

Golf balls come in packages of three.
The **radius** of each golf ball is **2 cm.**
How much **wasted space** (air) is in the package?
Show your work.



Describe the **relationship** between a rectangular prisms' length and width that makes it have the smallest surface area.

The company designs a **rectangular prism** crate with a **volume** of **64 000 cm^3.** Its height is **40 cm.**

Determine the length and width of the crate with the smallest surface area.

Simplify

$2(3x^2 - 5x) + 4x(7 + x)$

If $x = 3$,
what is the value of $2x^2 + 5x$?

The student council sells lollipops for 10¢ each. They pay 4¢ for each lollipop and spend $10 to advertise the sale. P represents the student council's profit, in dollars, and n represents the number of lollipops sold.

Write an equation to represent the profit.

Determine if the following relationship is linear or non-linear.

Time (in hours)	Distance (km)	First differences
3	10	
4	100	?
5	1000	?
6	10000	?

Determine if the following relationship is linear or non-linear.

Time (in hours)	Distance (km)	First differences
1	25	
2	30	?
3	35	?
4	45	?

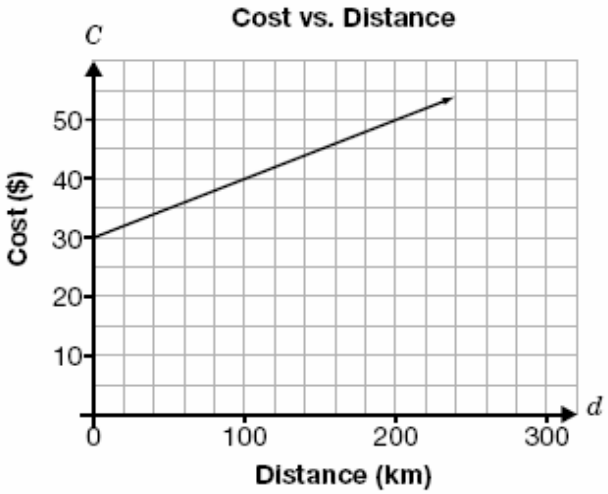
Determine if the following relationship is linear or non-linear.

Time (in hours)	Distance (km)	First differences
3	20	
5	30	?
7	40	?
9	60	?

Determine if the following relationship is linear or non-linear.

Time (in hours)	Distance (km)	First differences
10	60	
		?
8	55	
		?
6	50	
		?
4	45	

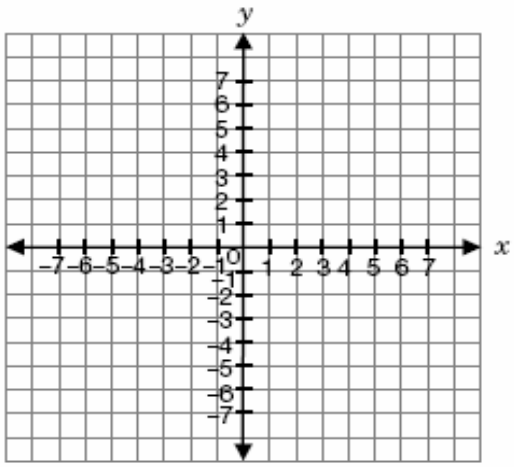
Determine the equation of the line.



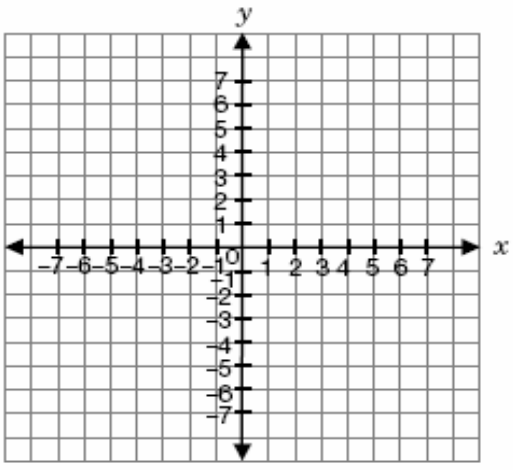
How many of these equations represent straight lines?

$$y = x - 2x$$
$$y = 2 - 4x$$
$$y = x^2 + 8 - x^2$$

What are the coordinates of the point of intersection of the lines $y = x + 1$ and $x = 3$?



A is the point (2, 1), B is the point (1, 4) and D is the point (1, 6).If ABCD is a rhombus, determine the coordinates for a point, C. (can be solved algebraically, it is not necessary to draw a graph)

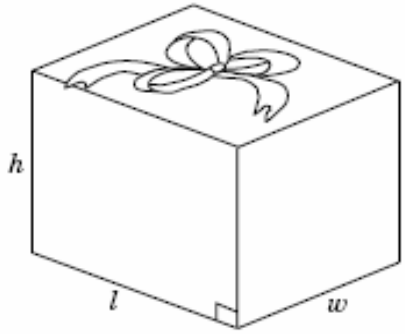


If the diameter of a volleyball is three times the diameter of a tennis ball,

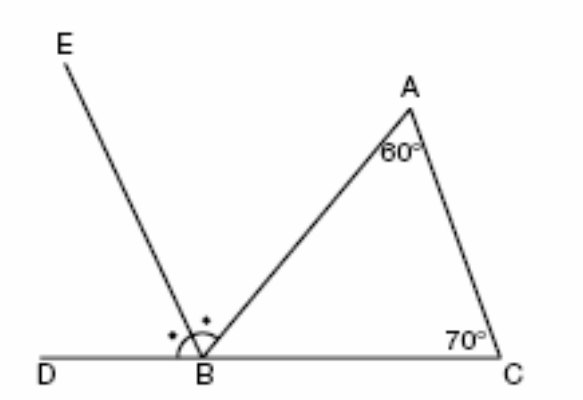
a) How many times greater is the surface area of the volleyball

b) How many times greater is the volume of the volleyball

Hunaid is wrapping the gift shown below.Which formula should he use to determine **the amount of wrapping paper** he needs to cover the box?



In the diagram below, line segment EB bisects ∠ABD. What is the measure of ∠ABE?



Sanya has a summer job picking berries at a farm. Each day, she is paid a base salary, plus an amount for each basket she fills with berries.

The equation $W = 15 + 1.25n$ represents the relationship between Sanya's **daily wage,** W, in dollars, and the **number of baskets** she fills, n.

a) Explain what the **slope** of the line means in relation to picking berries

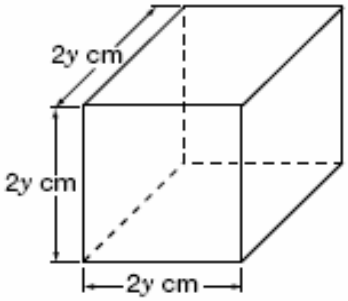
b) Determine **the number of baskets** that Sanya must fill to have a daily wage of **$70.**

What is the sale price of the skateboard? (including 14% tax)

Kaya works as a translator. She charges 21¢ for each word she translates.

Write an expression Kaya could use to calculate her charge, in dollars, for translating a document with n words?

Each side of a cube is $2y$ cm long. What is the volume of the cube?



Mark records his car's odometer reading. He travels at approximately the same speed for the whole journey and makes only one 30-min rest stop.

Time	Reading (km)
12:00 noon	25 091
1:00 p.m.	25 178
2:00 p.m.	25 222
3:00 p.m.	25 310
4:00 p.m.	25 395
5:00 p.m.	25 483

When does Mark most likely make his 30-min rest stop?

In a soccer league, a win counts for 2 points, a tie counts for 1 point and a loss counts for 0 points. A soccer team has 5 wins, 2 ties and 3 losses.
If the team continues to win, tie and lose in the same ratio, predict their point total after 40 games.

The advertisement below shows the sale price of a big-digit calculator.

Determine the **regular price** of the big-digit calculator.

Simplify fully

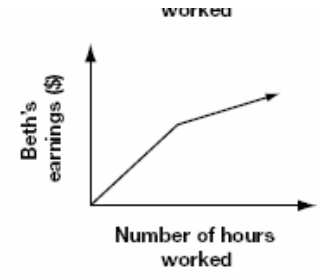
$$-5x(3 - 2x) + 2x^2$$

Bob is thinking of a number. He adds 15 to his number and finds that the result is four times his number.

Determine an equation that will work to find Bob's number.

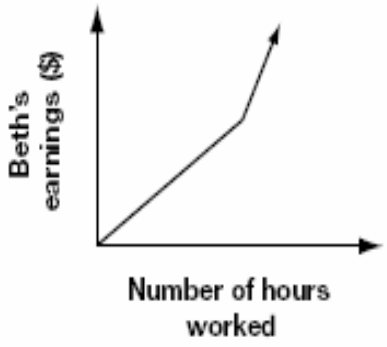
Beth works at a grocery store. She earns $8/h for her first 20 h of work in a week. She earns $11/h for working beyond 20 h a week.

Could the following graph represent her earnings? Justify your answer.



Beth works at a grocery store. She earns $8/h for her first 20 h of work in a week. She earns $11/h for working beyond 20 h a week.

Could the following graph represent her earnings? Justify your answer.



Sergio sells 7 models of CD players. The table shows the unit cost of each model and the number of CD players of that model sold in the past month.

Determine the relationship, if any, between the unit cost and the number sold.

Model	Unit cost ($)	Number sold
A	55	11
B	70	14
C	90	17
D	100	21
E	120	24
F	150	29
G	200	41

Natasha works for a computer company. The table shows her annual salary in the last five years.

Year	Annual salary ($)
1	32 000
2	33 600
3	35 200
4	36 800
5	38 400

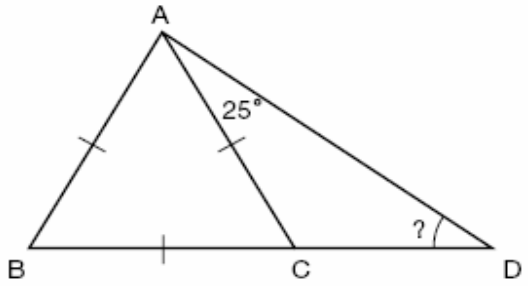
If the trend continues, what will Natasha's annual salary be in the 8th year?

Scientists find that the height of a person, h, in centimetres, is related to the length of the person's femur bone, f, in centimetres, according to the following formula:

$$h = 69.09 + 2.24f$$

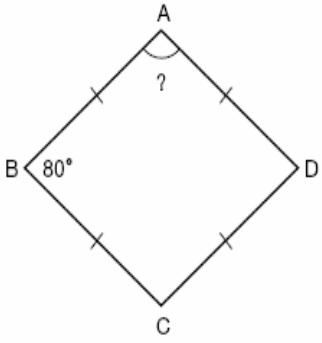
According to the formula, what is **the height** of a person with a femur bone of 48.6 cm in length?

ABC is an equilateral triangle. BC is extended to D so that ∠CAD = 25°.

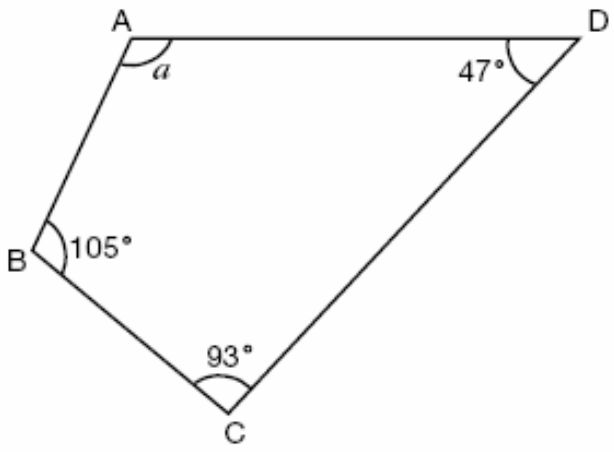


What is the measure of ∠ADC?

ABCD is a quadrilateral with all sides the same length. ∠B = 80°. What is the measure of ∠A?

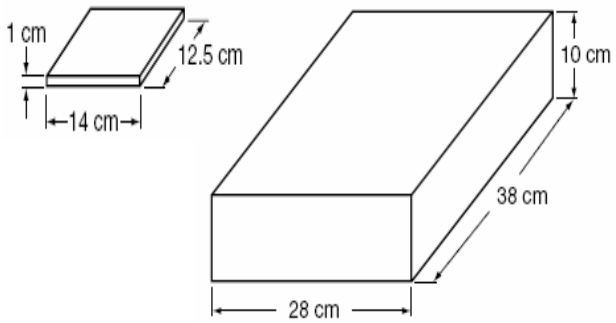


ABCD is a quadrilateral.

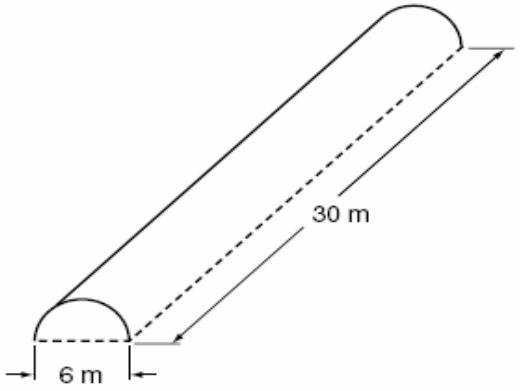


What is the value of a?

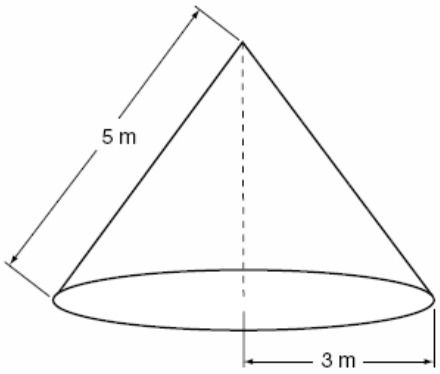
What is the largest number of CD cases Elisa can pack inside the covered storage box?



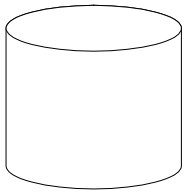
The figure shows a greenhouse roof in the shape of half a cylinder.What is the approximate surface area of the curved roof?



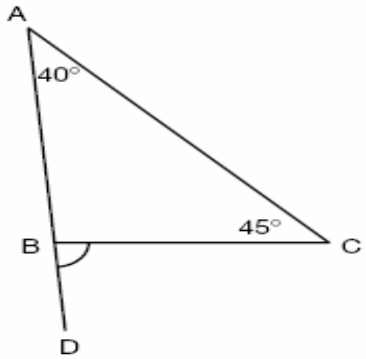
A tent has the shape of a cone. The radius of the base is 3 m, and the slant height is 5 m.
What is the approximate surface area of the tent, including the floor?



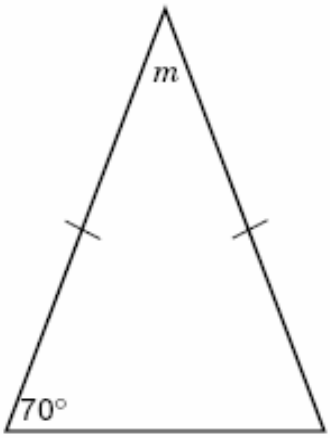
A cylindrical hot water heater has a diameter of 40 cm and a height of 120 cm. Determine the volume of water the cylinder can hold.



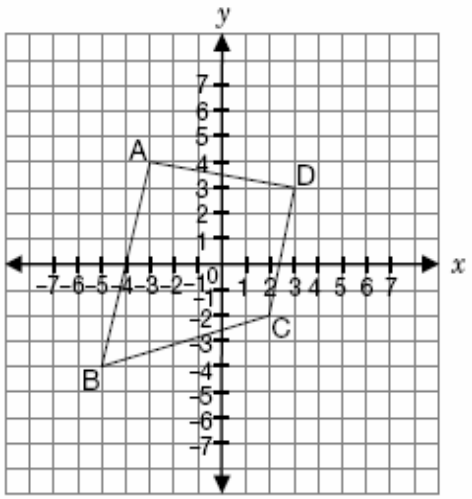
ABC is a triangle. AB is extended to D.
What type of angle is ∠CBD?



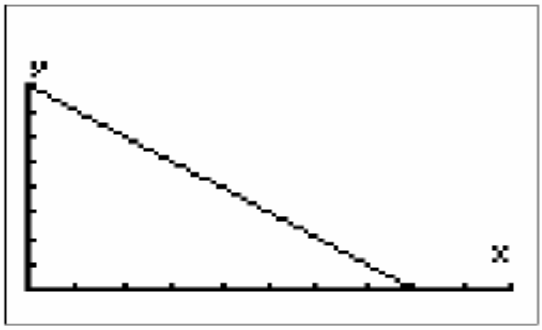
The figure below shows an isosceles triangle. What is the value of m?



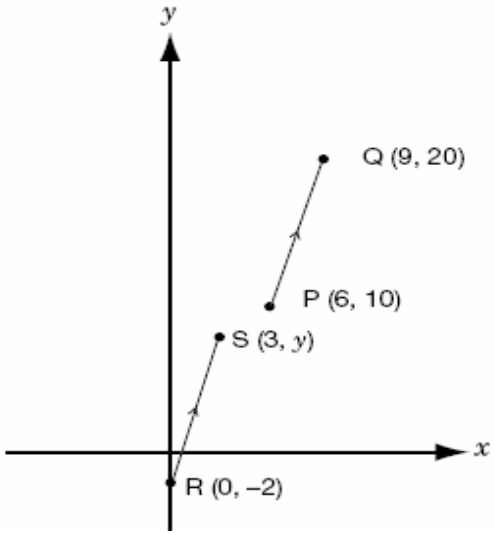
Four points, A, B, C and D, are marked on an xy-plane and joined by line segments as shown. Which line segment has a **negative** slope?



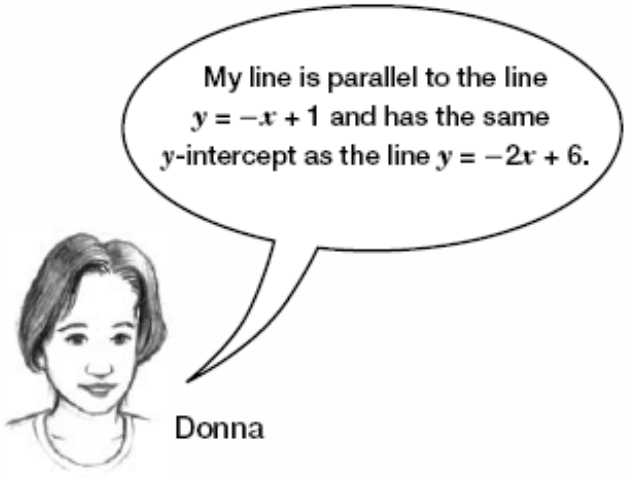
Determine the equation that represents the line with a y-intercept of 600 and a slope of 50.



Write a statement to describe the relationship between x and y.



PQ and RS are parallel line segments. What is the value of y?



Determine the equation of Donna's line.