

Module 1 Problem Set

Due Jan 17 by 9:59pm **Points** 15 **Submitting** an external tool
Available Jan 10 at 10pm - Mar 20 at 9:59pm 2 months

Review Assessment Attempts

Uber, Jacques

Module 1 Problem Set

Started: 1/11/21, 5:29 pm

Last Changed: 1/12/21, 6:53 pm

Total time questions were on-screen: 78.2 minutes

Due Date: Sun 1/17/21, 9:59 pm

Score in Gradebook: 14.1/15


Grade is calculated on the best version of each question

Scored attempt. Score: 14.1/15.

Question 1.

Version 1*/1. Score: 1/1

Given $f(x) = 4 - 1x$, find the following:

$f(-6) =$ 

$f(6) =$ 

$f(15) =$ 

$$f(-13) = \boxed{19}$$

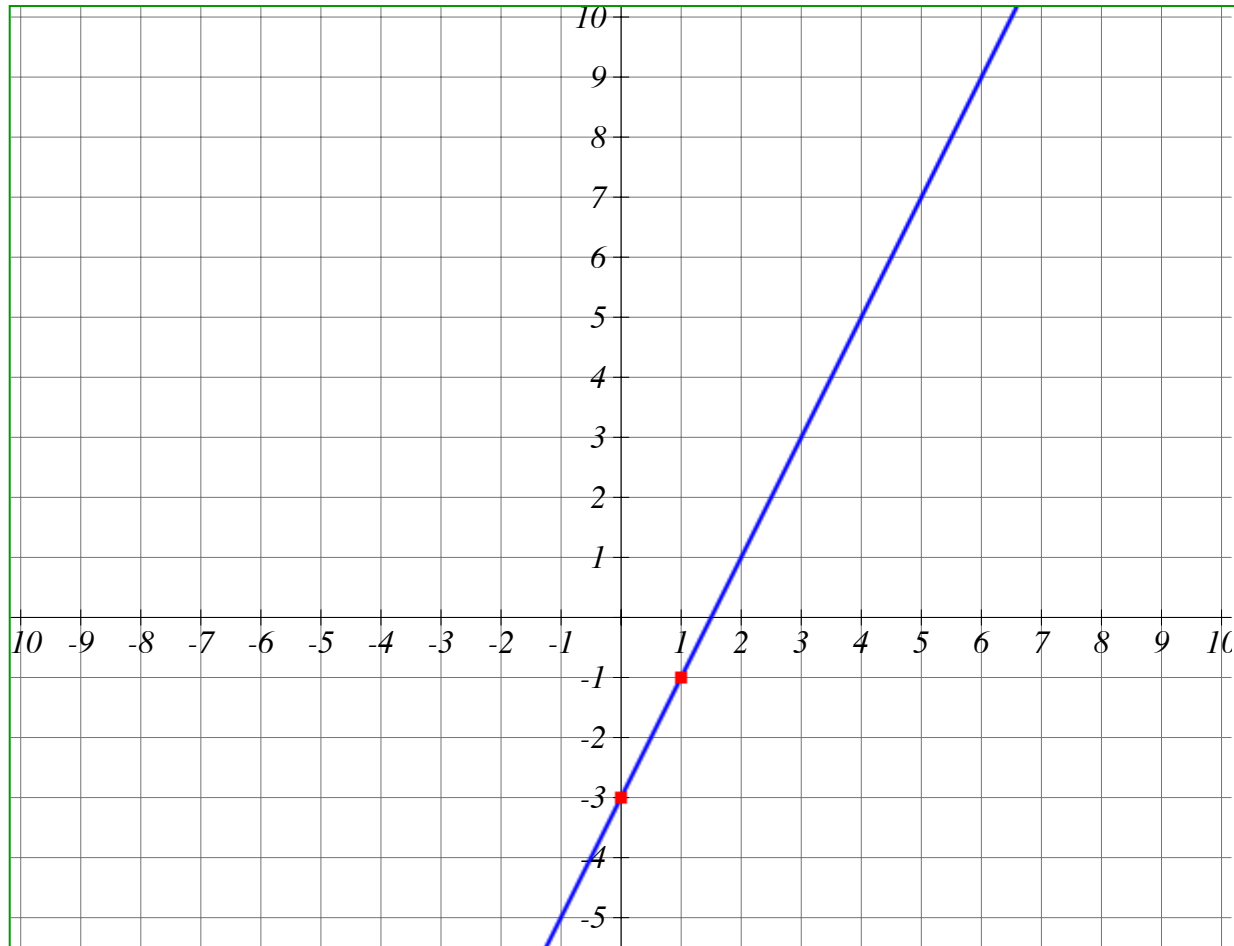
$$f(13) = \boxed{-9}$$

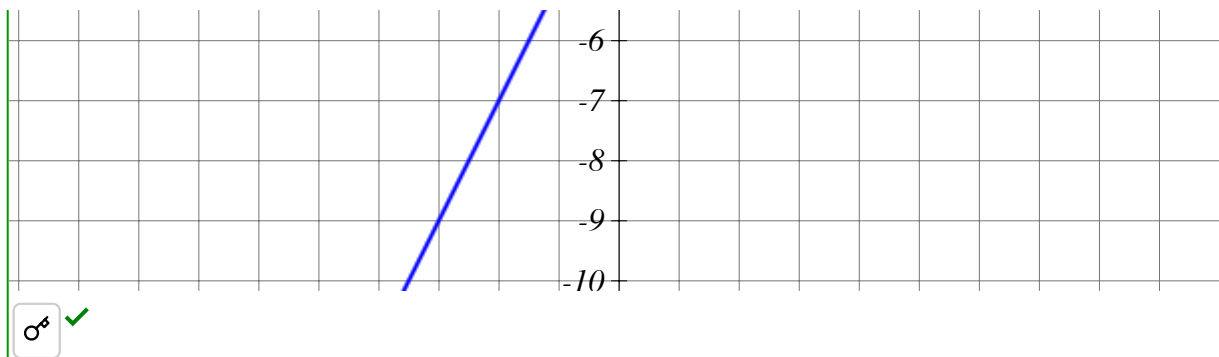
Score: 0.25/0.25 0.25/0.25 0.25/0.25 0.25/0.25

Time spent on this version: 6.2 minutes.

[✉ Message instructor](#)**Question 2.**

Version 1*/1. Score: 1/1

Graph $f(x) = 2x - 3$ 



Score: 1/1

Time spent on this version: 0.3 minutes.

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Question 3.

Version 2*/2. Score: 1/1 ▼

Linear Functions			
For each function below, identify the slope, y-intercept and x-intercept			
Type your numerical answers as whole numbers or simplified fractions. Type your intercepts as ordered pairs. Type DNE for any undefined slope or intercepts that do not exist.			
Function	Slope	y-intercept	x-intercept
$y = 6x - 1$	6 🔑	$(0, -1)$ 🔑	$\left(\frac{1}{6}, 0\right)$ 🔑
$y = -7 - 5x$	-5 🔑	$(0, -7)$ 🔑	$\left(-\frac{7}{5}, 0\right)$ 🔑
$y = 5x$	5 🔑	$(0, 0)$ 🔑	$(0, 0)$ 🔑

$y = 7$	0 ♂	(0,7) ♂	DNE ♂
$x = 2$	DNE ♂	DNE ♂	(2,0) ♂

Score: 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067 0.067/0.067
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Time spent on this version: 1.5 minutes.

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Question 4.

Version 1*/1. Score: 1/1

Write the equation in slope-intercept form of the line with a slope of `4` passing through `(1,3)`.

`y = ` ♂

Score: 1/1

Time spent on this version: 0.7 minutes.

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Question 5.

Version 2*/2. Score: 1/1 ▼

If ` $f(x)$ ` is a linear function and given ` $f(3) = 5$ ` and ` $f(10) = -2$ `, determine the linear function.

a.) What is the slope? ♂ (Type your answer as an integer or simplified fraction.)

b.) What is the `y`-intercept? ♂ (Type your answer as an integer or simplified fraction.)

c.) What is ` $f(x)$ `? (Type an exact answer.)

c.) what is $f(x)$? (type an exact answer.)

$f(x) =$ 

Score: 0.333/0.333 0.333/0.333 0.333/0.333




Time spent on this version: 1.7 minutes.


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Question 6.

Version 1*/1. Score: 1/1

The cost $C(x)$, where x is the number of miles driven, of renting a car for a day is \$48 plus \$1.25 per mile.

What is the slope of the linear function and its units?   

 - select the correct units

What is the y -intercept and its units?     - select the correct units

What is the cost function? $C(x) =$ 

Score: 0.2/0.2 0.2/0.2 0.2/0.2 0.2/0.2 0.2/0.2

Time spent on this version: 1.4 minutes.

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Question 7.

Version 1*/1. Score: 1/1

A company produces very unusual CDs for which the variable cost is \$10 per CD and the fixed costs are \$30000. They will sell the CDs for \$47 each. Let x be the number of CDs produced.

Write the total cost as a function of the number of CDs produced.

$C(x) =$ 

Write the total revenue as a function of the number of CDs produced.

$$R(x) = 47x$$

Write the total profit as a function of the number of CDs produced.

$$P(x) = 37x - 30000$$

Find the number of CDs which must be produced to break even. (Enter your answer as an integer.)

The number of CDs which must be produced to break even is 811

Score: 0.25/0.25 0.25/0.25 0.25/0.25 0.25/0.25

Time spent on this version: 3.5 minutes.

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Question 8.

Version 1*/1. Score: 1/1

A local fruit company recently released a new flavor of applesauce. By the end of the first year, profits on this product amounted to \$36,000.00. The anticipated profits for the end of the fourth year is \$123,000.00. Assume that the rate of profit will remain constant over time, with P representing the profit and x representing the number of years elapsed.

a) Write a linear function $P(x)$ that expresses profit as a function of time. $P(x) =$

$$29000x + 7000$$

b) Use the function in (a) to predict the company's profit at the end of the seventh year. \$

$$210000$$

c) Use the function in (a) to predict when company's profit should reach \$471,000.00.

$$16 \text{ years}$$

Score: 0.4/0.4 0.3/0.3 0.3/0.3

Time spent on this version: 8.5 minutes.

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Question 9.

Version 1*/1. Score: 1/1

When gases are heated the gas will expand. The expression for a certain gas $V(T) = 0.133T + 43$ calculates the volume V in cubic centimeter of a sample of gas at temperature T in degrees Celsius.

a) Evaluate $V(0) =$ cubic centimeters

b) If the temperature increases by 30 degrees, by how much does the volume increase?

cubic centimeters

c) What is the volume of gas when the temperature is 5 degrees? cubic centimeters

Score: 0.333/0.333 0.333/0.333 0.333/0.333

Time spent on this version: 2 minutes.

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Question 10.

Version 2*/3. Score: 0.8/1 ▼

The following table shows total dollar sales (in thousands) for a local retailer for various years.

Year	2015	2016	2017	2018	2019
Sales (\$)	34	59	84	109	134

a) What was the total in sales for 2016? \$

b) By how much did sales increase by each year? \$

c) Find a linear function that models the above data. Let $x=1$ correspond to 2015 and $S(x)$ is in thousands.

$S(x) =$ $x +$

d) Use $S(x)$ to predict sales in 2020. \$

If needed, round answer to 5 decimal places.
Enter DNE for Does Not Exist, oo for Infinity

Score: 0.2/0.2 0/0.2 0.2/0.2 0.2/0.2 0.2/0.2

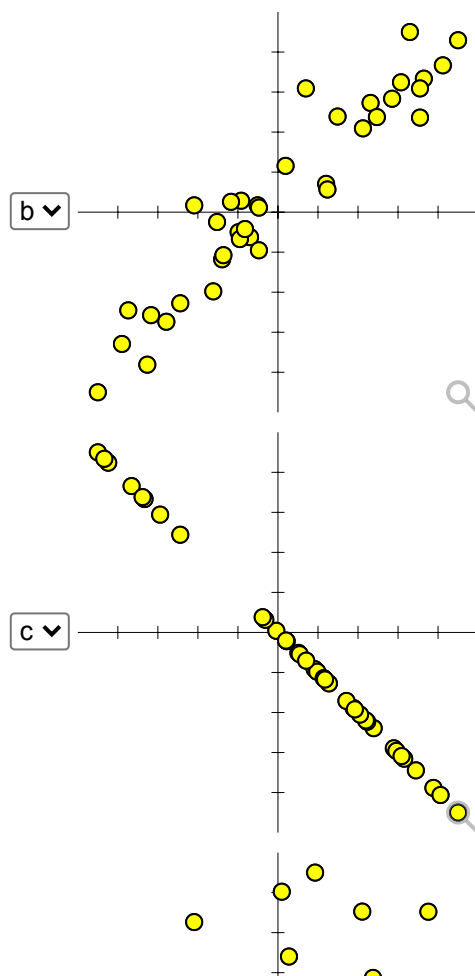
Time spent on this version: 1.2 minutes.

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Question 11.

Version 1*/1. Score: 1/1

Match each scatterplot shown below with one of the four specified correlation coefficients.

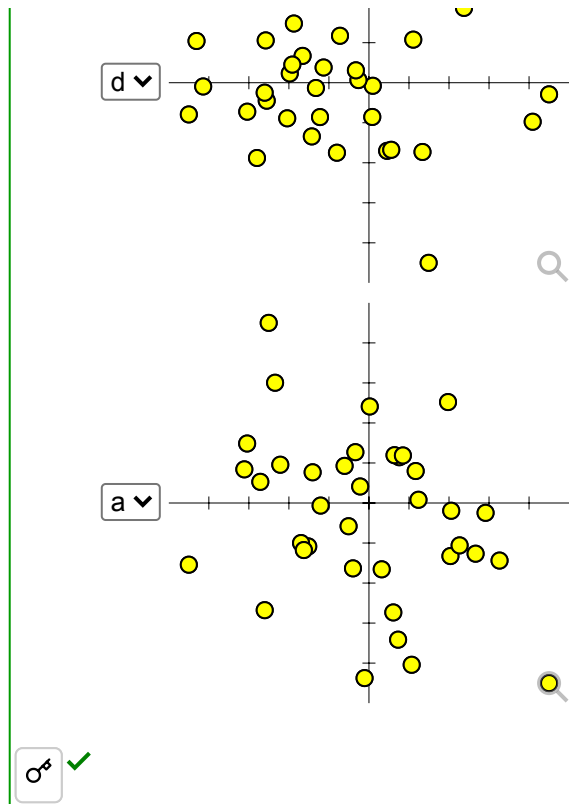


a. -0.31

b. 0.95

c. -1.00

d. 0.13



Score: 1/1

Time spent on this version: 0.6 minutes.

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Question 12.

Version 2*/2. Score: 1/1 ▼

Based on the data shown below, calculate the correlation coefficient (to three decimal places).

x	y
5	31.5
6	27.84
7	25.28
8	25.72
9	24.96
10	23.5

11	22.54
12	21.38
13	17.92
14	16.36
15	17



Score: 1/1

Time spent on this version: 5.5 minutes.

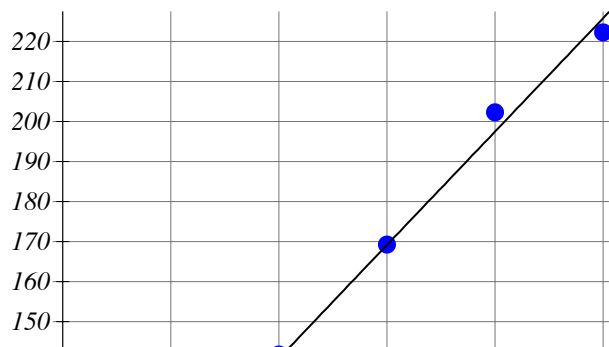
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Question 13.

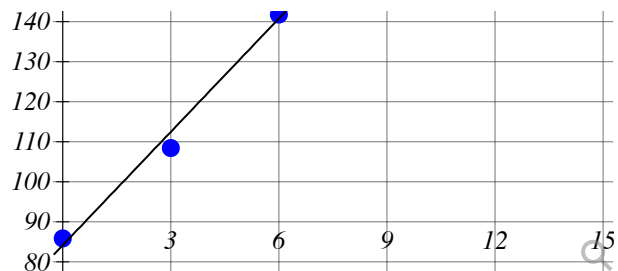
Version 1*/1. Score: 1/1

The following table shows retail sales in drug stores in billions of dollars in the U.S. for years since 1997.

Year	Retail Sales
0	85.851
3	108.426
6	141.781
9	169.256
12	202.297
15	222.266

Let $S(t)$ be the retail sales in billions of dollars in t years since 1997. A linear model for the data is $F(t) = 9.44t + 84.182$.





Use the above scatter plot to decide whether the linear model fits the data well.

- ☒ The function is a good model for the data.
- ☐ The function is not a good model for the data



Estimate the retails sales in the U. S. in 2014. ` \$ ` billion dollars.

Use the model to predict the year in which retails sales will be \$234 billion.

Score: 0.333/0.333 0.333/0.333 0.333/0.333

Time spent on this version: 2.6 minutes.

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Question 14.

Version 2*/2. Score: 1/1 ▼

The table below show data that has been collected from different fields from various farms in a certain valley. The table contains the grams of Raspberries tested and the amount of their Vitamin C content in mg. Find a linear regression model that express **Vitamin C content** as a function of the **weight of the Raspberries**.

Round your answers to 3 decimal places

Raspberry Type	grams	Vitamin C content in mg
Farm A - North Field	65	16.4
Farm B - North Field	75	20.3
Farm A - South Field	85	25.8
Farm B - South Field	95	29.2

Farm C - Small Field	105	34.3
Farm D	115	38
Farm E	125	42.8

$$y = .440x + -12.22$$

Score: 0.5/0.5 0.5/0.5

Time spent on this version: 2.2 minutes.

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Question 15.

Version 3*/3. Score: 0.25/1 ▼

The table below gives the amount of money (in dollars) spent on football by a major university for each year specified. Let x represent the number of years since 2005, and let y represent the amount of money (in thousands of dollars) spent on football. Find the equation of the line of best fit and use that equation to make the indicated predictions.

Round your answers to the nearest hundredth.

Year	2005	2006	2007	2008	2009	2010
Dollars spent on football	169,000	190,000	209,000	223,000	251,000	291,000

The equation of the line of best fit is:

$$y = 23.057 \cdot x + 164.524$$

Use the equation from part (a) to predict the amount of money that will be spent on football in the year 2021.

\$ 533436

Use the equation from part (a) to predict the amount of money that will be spent on football in the year 2011


2021.

\$ 994576



Score: 0/0.5 0.25/0.25 0/0.25

Time spent on this version: 3.3 minutes.

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