MAT 035, Paper Test #2, Spring 2017 Name KEY

Instructions: Show all work or you will not receive full credit. Provide exact, fully-reduced answers, unless specifically asked to round. Be sure to provide complete explanations, and answer all parts of each question.

1. Simplify $-3(x+4)-(9-x)$. (3 points)

$-3x-12-9+x$

$-2x-21$

2. Solve $\frac{3}{4}x+1=\frac{1}{2}x+7$. (4 points)

$-1 \quad -1$

$\frac{3}{4}x = \frac{1}{2}x+6$

$-\frac{1}{2}x \quad -\frac{1}{2}x$

$\frac{1}{4}x = 6$

$\boxed{x=24}$

3. Solve $3(x-2)=2(x+5)-(7-x)$. (3 points)

$3x-6=2x+10-7+x$

$3x-6=3x+3$

$-6=3 \longrightarrow$ no solution! $\emptyset$

4. You have to invest \$40,000. If you invest a certain amount in stocks earning 10%, twice that amount in bonds earning 5%, and the remaining amount in CDs earning 1%. How much did you invest in each investment if you earned \$2480 in interest? (5 points)

x in 10% stocks

$2x$ in 5% bonds

$40{,}000-3x$ in CD

$.10x+.05(2x)+.01(40{,}000-3x)=2480$

$.20x+400-.03x=2480$

$.17x+400=2480$

$.17x=2080$

$x=12{,}235.29$ stocks

24,470.59 in bonds

3294.12 in CD.

5. You have \$25.00 to spend on parking for the day. A downtown lot charges \$7.00 to park, plus \$4 for any additional portion of an hour. How many hours can you park your car in that lot? (5 points)

$25=7+4x$

$-7 \quad -7$

$\frac{18}{4}=\frac{4x}{4}$

$4.5=x \quad \sim 4$ hrs

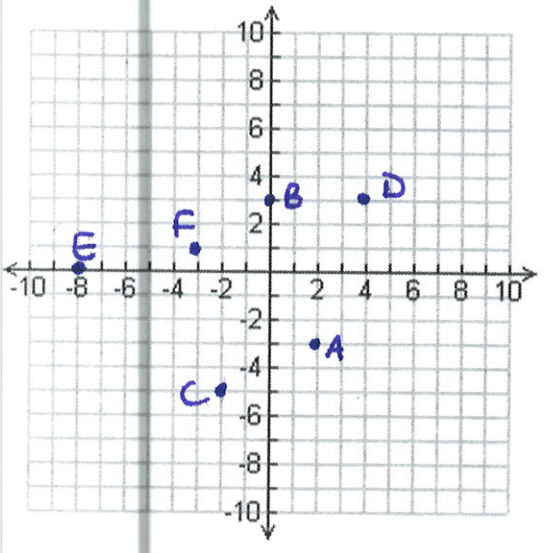
6. Solve $9x + 11 > 2x - 7$. Write your solution in a) set notation, b) on a number line, c) in interval notation. (6 points)

$7x + 11 > -7$
$-11 \quad -11$
$\frac{7x}{7} > \frac{-18}{7}$
$x > -\frac{18}{7}$

$\{x \mid x > \frac{-18}{7}\}$

$(-\frac{18}{7}, \infty)$

7. Graph the following points on the graph below. Label each point. (5 points)
$A(2,-3), B(0,3), C(-2,-5), D(4,3), E(-8,0), F(-3,1)$

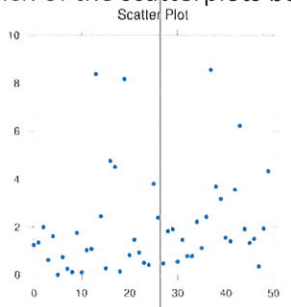


8. Circle the value of the strongest correlation. (2 point)
a. -0.903 b. 0.819 c. 2.54×10^{-4} d. 0.01 e. -0.49

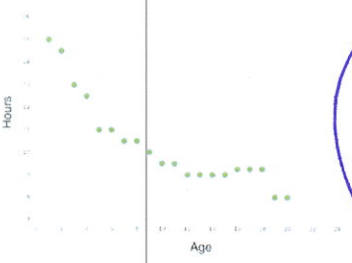
9. Circle the value of the weakest correlation. (2 point)
b. -0.903 b. 0.819 c. 2.54×10^{-4} d. 0.01 e. -0.49

10. Which of the scatterplots below has the strongest linear correlation? (4 points)

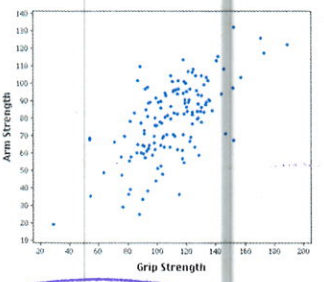
a.



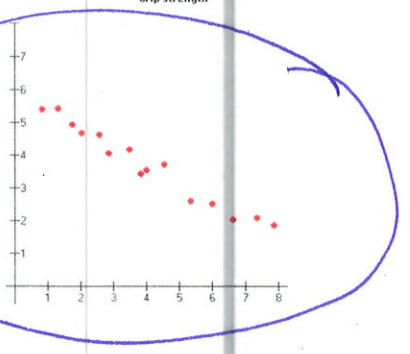
b.



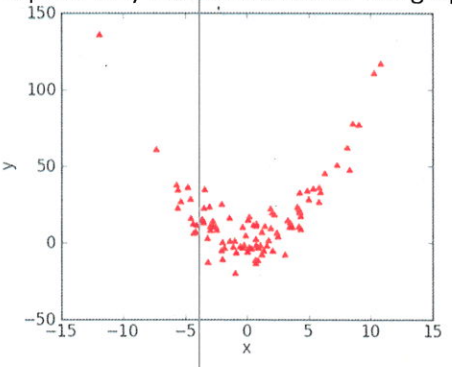
c.



d.

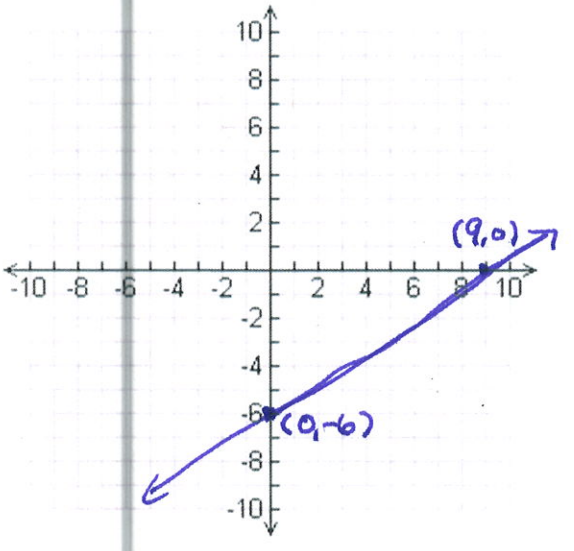


11. Explain why the correlation of the graph below is nearly zero. (2 points)



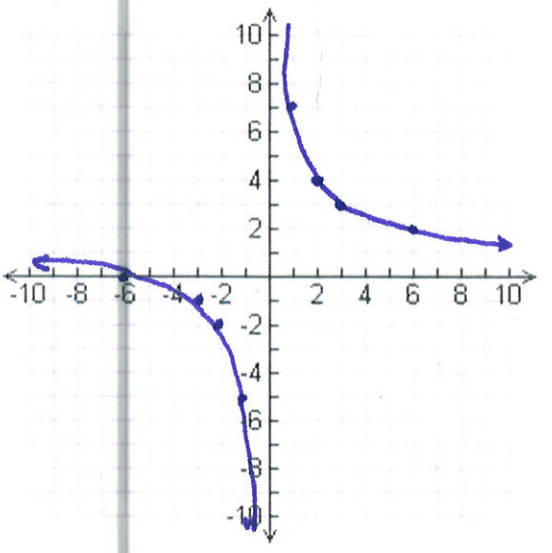
Correlation is linear
this graph is very nonlinear
a line trying to approximate
the data would be nearly
horizontal

12. Graph the equation $2x - 3y = 18$ using the intercepts of the graph. Clearly label both. (4 points)



13. Graph the equation $y = \frac{6}{x} + 1$. (4 points)

x	y
1	7
2	4
3	3
6	2
-1	-5
-2	-2
-3	-1
-6	0



14. Find the slope of the line connecting the points $(-1, -7)$ and $(-3, -5)$. (3 points)

$$\frac{-5-(-7)}{-3-(-1)} = \frac{2}{-2} = -1$$

15. Find the equation of the line with $m = -\frac{1}{2}, b = 3$. (2 points)

$$y = -\frac{1}{2}x + 3$$

16. Data is shown in the table below. Find the linear regression equation and correlation between quantity sold (y) and advertising (x). (6 points)

Quantity Sold	Price	Advertising
8500	$2	$2,800
4700	$5	$200
5800	$3	$400
7400	$2	$500
6200	$5	$3,200
7300	$3	$1,800
5600	$4	$900

$y = .5733x + 5697.29$

$r = .5375$

Interpret the slope in the context of the problem.

for each additional dollar spent on advertising an additional .57 units will be sold.