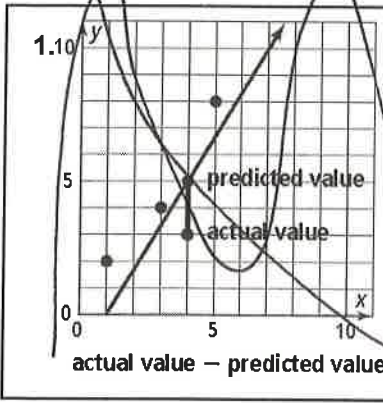
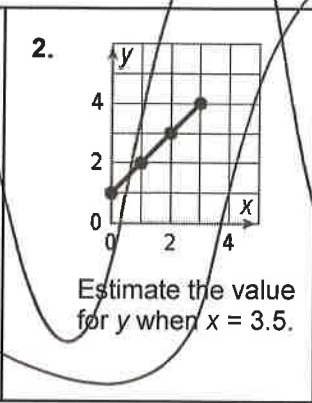
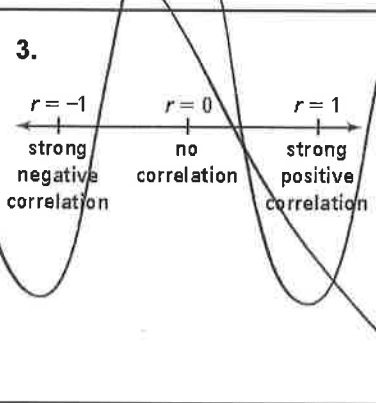


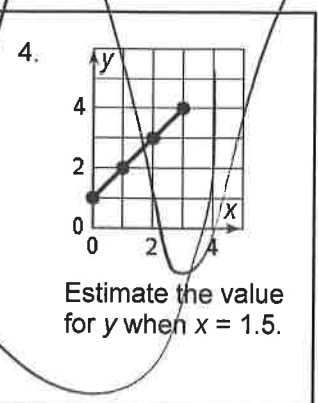
Choose the concept from the list that best represents the item in each box.

- Interpolation correlation coefficient extrapolation residual

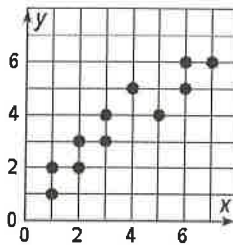
1. 

2. 

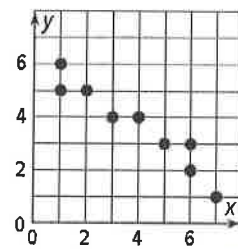
3. 

4. 

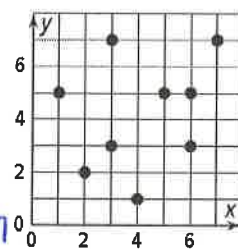
5. The scatter plots show data sets that have different types of associations. Draw a line from each type of association to the scatter plot it describes.



no association



positive association



negative association

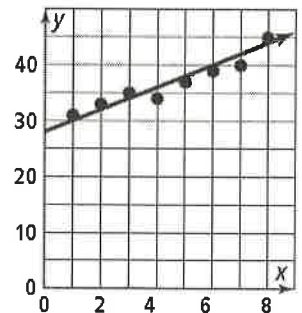
6. View the scatter plot and the trend line. Fill in the blanks to determine the equation for the trend line.

Select two points on the trend line. (1, 31) and (6, 39)

Use them to find the slope. $m = \frac{8}{5}$ $\frac{39-31}{6-1} = \frac{8}{5}$

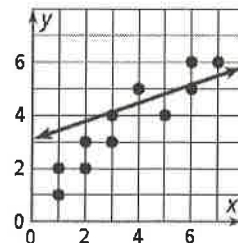
Use the slope and the first point from above to write the equation of the trend line. $Y = \frac{8}{5}x + 19.375$

$31 = \frac{8}{5}(1) + b$
 $b = 19.375$



7. Steve drew a trend line for the plotted points. What is Steve's misunderstanding?

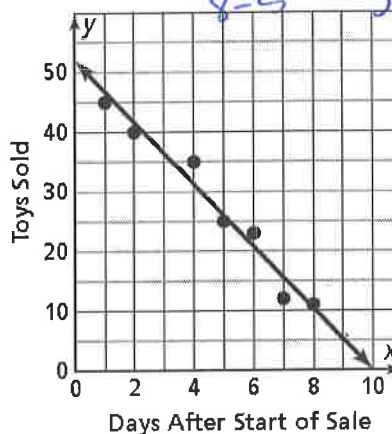
The line does not match the bottom left side of graph data



Fill in the blanks to complete each statement about the linear regression. Round to the nearest tenth if necessary.

8. The parameters of the linear model found in the linear regression are the slope, $m = -4.67$ and the y-intercept, $b = 48.3$. The equation of the best fit line is $y = -4.67x + 48.3$.

$(5, 25)$ & $(8, 11)$
 $\frac{11-25}{8-5} = \frac{-14}{3} = -4.67$

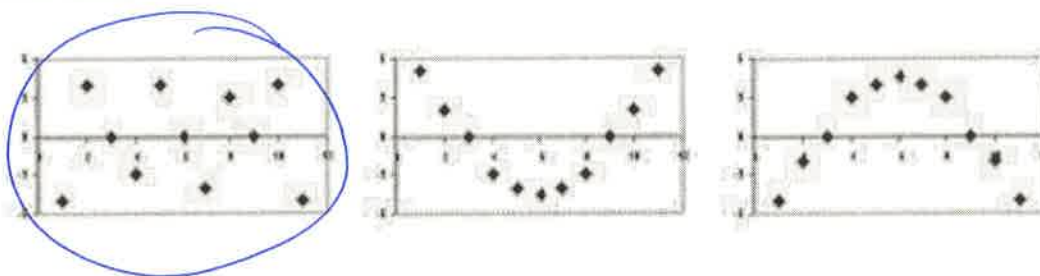


9. Brian made statements about the line of best fit for the scatter plot data shown. Put an X next to any incorrect statements. Correct his error(s).

- a. The correlation coefficient is positive because the data show a strong correlation. *negative is going down*
- b. Using extrapolation, no toys will be sold on the tenth day. *interpolation within graph*
- c. The parameters of the line of best fit are a slope of -5 and a y-intercept of 52. *Close enough...*
- d. Using interpolation, about 37 toys will be sold on the third day.

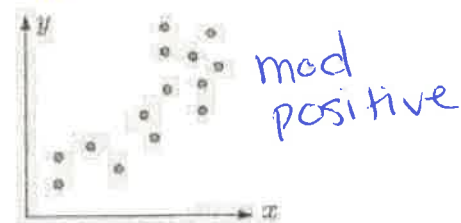
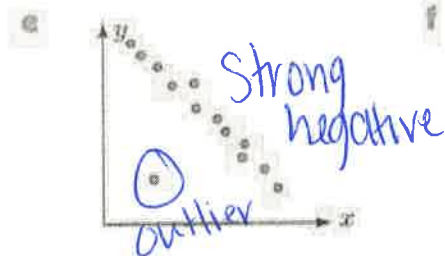
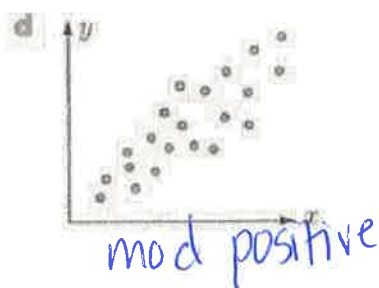
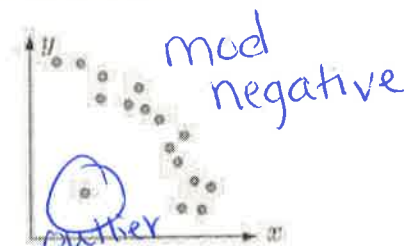
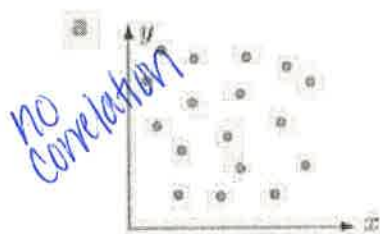
$y - 25 = -4.67(x - 5)$

10. Looking at the graphed residuals, circle the graph that shows that the trendline is a good fit for the data and that it is linear.



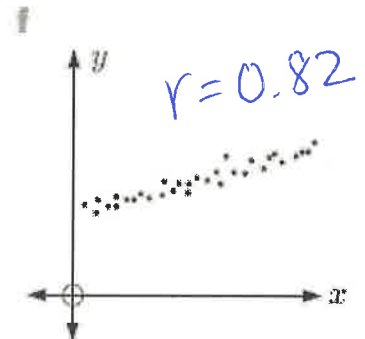
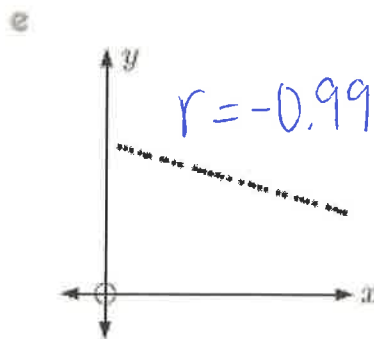
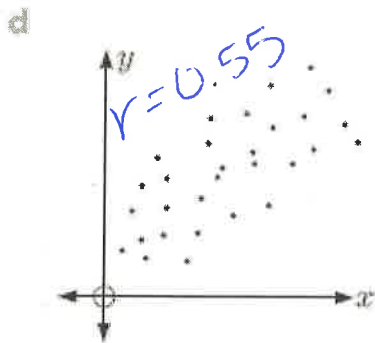
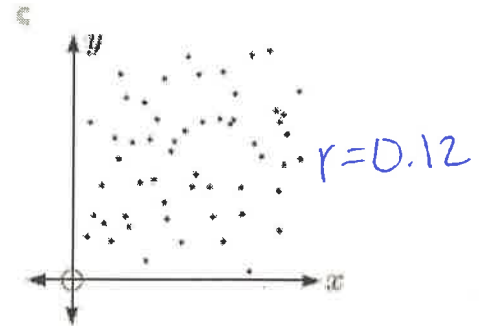
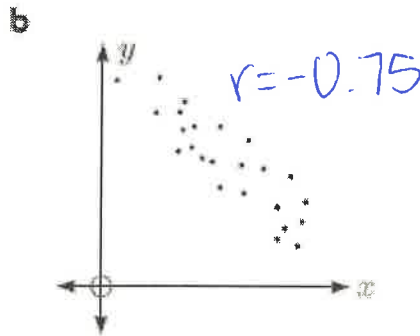
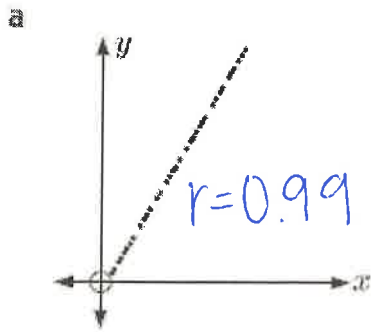
11. For the following scatter plots, comment on:

- i the existence of any *pattern* (positive, negative or no association)
- ii the relationship *strength* (zero, weak, moderate or strong)
- iii whether the relationship is linear
- iv whether there are any outliers.



12. Assign each correlation coefficient to a graph:

~~$r = 0.99$~~ , $r = 0.82$, ~~$r = 0.55$~~ , ~~$r = 0.12$~~ , $r = -0.75$, ~~$r = -0.99$~~



13. Given $f(x) = 2x - 1$, $g(x) = x^2$, and the graph of $h(x)$ evaluate each of the following.

a. $f(-4)$

-9

b. $h(1) + g(2)$

$2 + 4$
 6

c. x , when $h(x) = 4$

$x = 6$

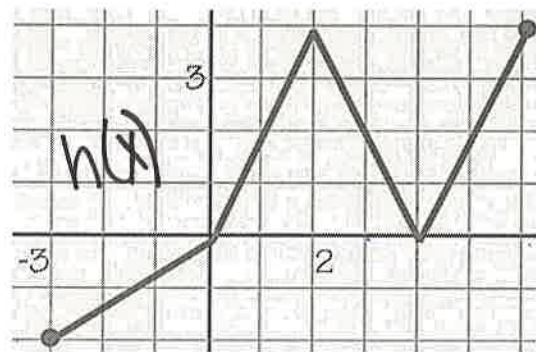
d. $f(0) + h(3)$

$-1 + 2$
 1

e. x , when $f(x) = 7$

$x = 4$

$7 = 2x - 1$
 $8 = 2x$



14. a. Draw and calculate the line of best fit for the graph

$(1, 28)$ $(5, 52)$

$\frac{52 - 28}{5 - 1} = \frac{24}{4} = 8$

$y - 28 = 8(x - 1)$

b. Extrapolate: What year will the snowboarding competition have 80 participants?

$80 - 28 = 8x - 8$

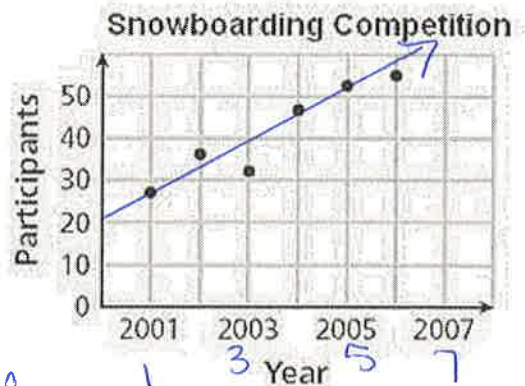
$52 = 8x - 8$

$x = 7.5$

between 2007 and 2008

c. Interpolate: How many participants were there in 200?

about 55



15. Use the graph to answer the following question.

a. Does the function represent a function? Justify your answer.

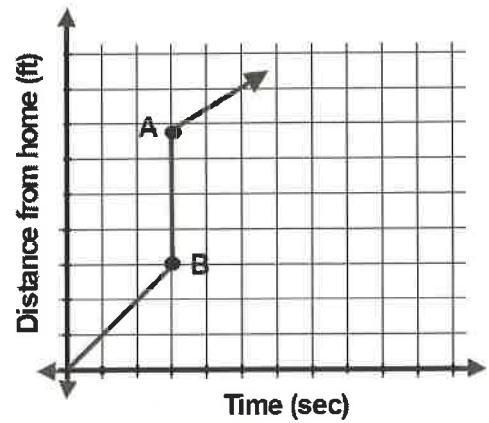
no, fails VLT

b. What is the domain?

$[0, \infty)$

c. What is the range?

$[0, \infty)$



16. Use the graph to answer the following question.

a. Does the function represent a function? Justify your answer.

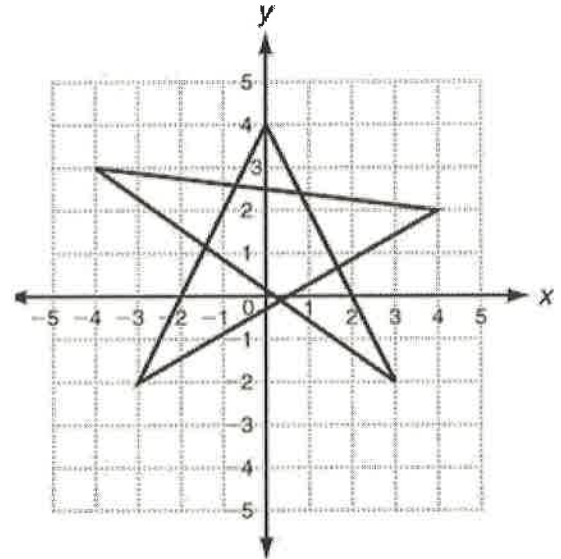
no, fails VLT

b. What is the domain?

$[-4, 4]$

c. What is the range?

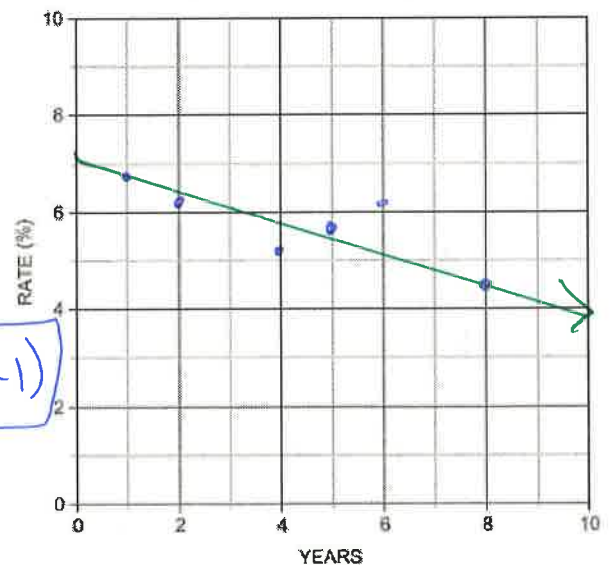
$[-2, 4]$



17. The table shows the mortgage interest rates y at a local bank for the years 2000 through 2008.

Year since 2000, x	1	2	4	5	6	8
Rate (%), y	6.8	6.2	5.2	5.8	6.1	5.5

MORTGAGE INTEREST RATES



a) Make a scatter plot of the data.

b) Draw a line of best fit.

c) Write an equation of the line of best fit.

$(1, 6.8)$ $(8, 5.5)$

$$\frac{5.5 - 6.8}{8 - 1} = \frac{-1.3}{7} \approx -0.19$$

$$y - 6.8 = -0.19(x - 1)$$

d) Use the equation to predict the mortgage interest rate for the year 2015.

$$y - 6.8 = -0.19(15 - 1)$$

$$y = 4.2$$

e) Use your trendline to predict the rate in 2003.

about 6.1%