

Do Now: Complete #1 on the review sheets,  
round to the nearest tenth

1) Round your answer to the nearest tenth.

Given:  $f(x) = 3\log_6(2x-1)$  find  $f(7)$ .

$$= 3\log_6(2(7)-1)$$

$$= 3\log_6(13)$$

Power prop

$$= \log_6 2197$$

change of base  
formula

$$= \frac{\log 2197}{\log 6}$$

$$= 4.3$$

2) Solve for x.

$$\log_9 x + \log_9 (x-8) = \log_9 9$$

$$\frac{\log 9}{\log 9}$$

$$\log_9^{-1}$$

$$\log_9 x(x-8) = 1$$

Prod. Prop.

$$\log_9 x^2 - 8x = 1$$

rewrite as an  
exp.

$$\begin{array}{r} 9^1 = x^2 - 8x \\ -9 \end{array}$$

$$x^2 - 8x - 9 = 0$$

$$(x-9)(x+1) = 0$$

$$x=9$$

$$x=-1$$

reject

3) Solve for x

$$\log_4 x = \frac{1}{3} \log_4 4096$$

power prop

$$\log_4 x = \log_4 4096^{1/3}$$

$$\log_4 x = \log_4 16$$

$$\Rightarrow \frac{\log 16}{\log 4}$$

$$\log_4 x = 2$$

rewrite as exp.

$$4^2 = x$$

$$\boxed{16 = x}$$

4) A group of students is interested in knowing if the number of times they can sink a basketball is related to the color of the basketball. The students shoot a series of baskets and record their success using a regulation colored basketball. They then switch to a blue colored basketball and shoot the same series of baskets. A statistical analysis is performed. What kind of study is this?

- ☒ Survey *only collect*
- ☒ Observational
- ☒ Controlled experiment
- 4) Census

do not interfere with Subjects

Two groups

- Placebo
- real thing

5) The table below displays the number of books purchased by each customer at a bookstore in one day.

⊕ Books purchased

Number of books	Number of customers
1	7
2	5
3	5
4	2
5	4
6	1

What is the mean number of books purchased per customer for the day? (Use the 1 var stats function on the calculator to get this)

$$\bar{x} = 2.75$$

What is the interquartile range for the data above? (Use the 1 var stats function on the calculator to get the info. You need)

$$Q_3 - Q_1$$

$$Q_3 = 4$$

$$Q_1 = 1$$

$$4 - 1$$

$$\boxed{3}$$

6) A survey was taken in biology class regarding the number of siblings of each student. The table shows the class data with the frequency of responses. The mean of this data is 2.5. Find the value of  $k$  in the table.

Siblings	1	2	3	4	5
Frequency	5	k	8	4	1

$$\bar{x} = 2.5 \quad 5 + k + 8 + 4 + 1 = \text{students}$$

$$2.5 = \frac{5 + 2k + 24 + 16 + 5}{18 + k}$$

$$\frac{2.5}{1} = \frac{2k + 50}{k + 18}$$

$$2k + 50 = 2.5(k + 18)$$

$$2k + 50 = 2.5k + 45$$

$$50 = .5k + 45$$

$$5 = .5k$$

$$k = 10$$

7) Find, to the *nearest tenth*, the standard deviation and variance of the distribution:

Score	100	200	300	400	500
Frequency	15	21	19	24	17

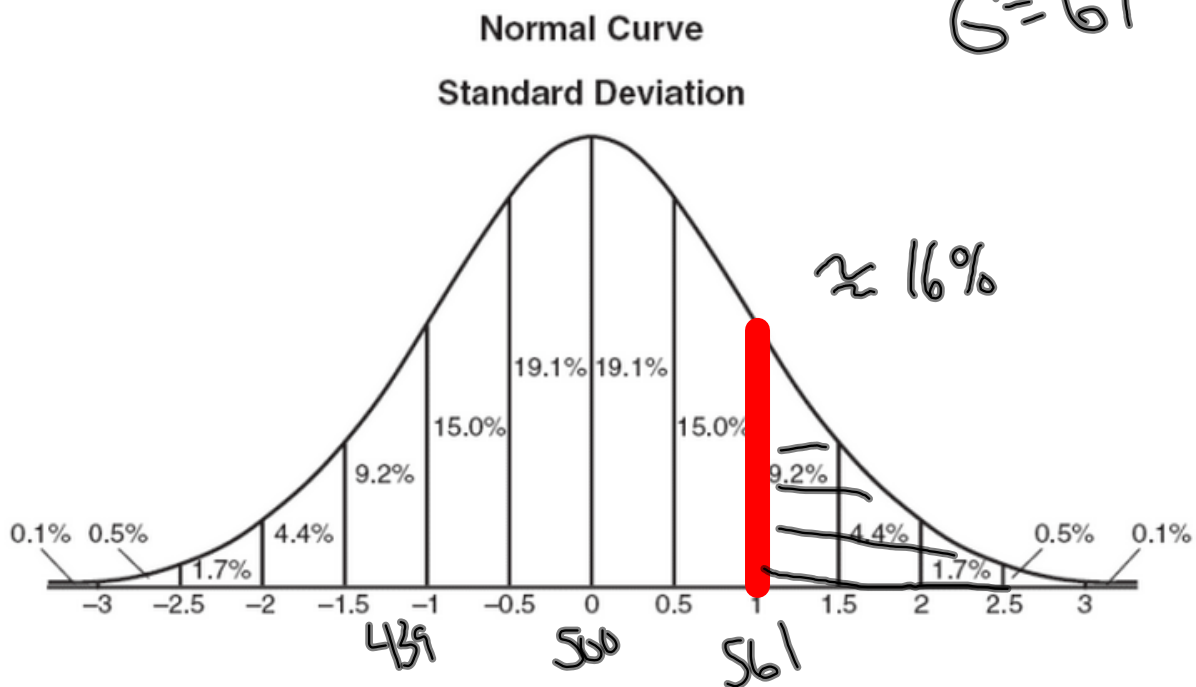
$$S_x = 134.0$$

$$S_x^2 = 17956$$



8) Battery lifetime is *normally distributed* for large samples. The mean lifetime is 500 days and the standard deviation is 61 days. To the *nearest percent*, what percent of batteries have lifetimes longer than 561 days? ~~How many batteries have lifetimes longer than 561 days? Round to the nearest integer.~~

$$\sigma = 61$$

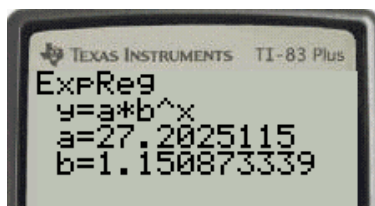


9) A population of single-celled organisms was grown in a Petri dish over a period of 16 hours. The number of organisms at a given time is recorded in the table below.

Time, hrs (x)	Number of Organisms (y)
0	25
2	36
4	52
6	68
8	85
10	104
12	142
16	260

Determine the exponential regression equation model for these data, rounding all values to the *nearest ten-thousandth*. Using this equation, predict the number of single-celled organisms, to the *nearest whole number*, at the end of the 18th hour.

Exponential regression equation:



$$y = a * b^x$$

$$y = 27.2025 * 1.1509^x$$

Prediction:

$$y = 27.2025 * 1.1509^x$$

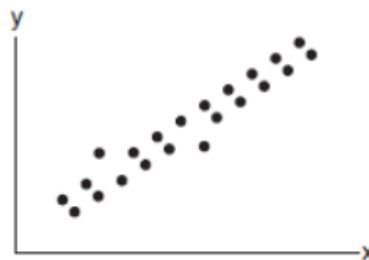
$$y = 27.2025 * 1.1509^{18}$$

$$y = 341.417$$

Substitute for x

341

10) What could be the approximate value of the correlation coefficient for the accompanying scatter plot?



Strong  
or  
weak

<input checked="" type="radio"/> 1)	-0.85
<input type="radio"/> 2)	-0.16
<input type="radio"/> 3)	0.21
<input checked="" type="radio"/> 4)	0.90

-1  
neg.  
Strong

0  
weak

1  
Strong

