no interference

1 Which task is *not* a component of an observational study?

1)	The researcher decides who will make up the sample.
2)	The researcher analyzes the data received from the sample.
3)	The researcher gathers data from the sample, using surveys or taking measurements.
4)	The researcher divides the sample into two groups, with one group acting as a control group.

?

controlled exp.

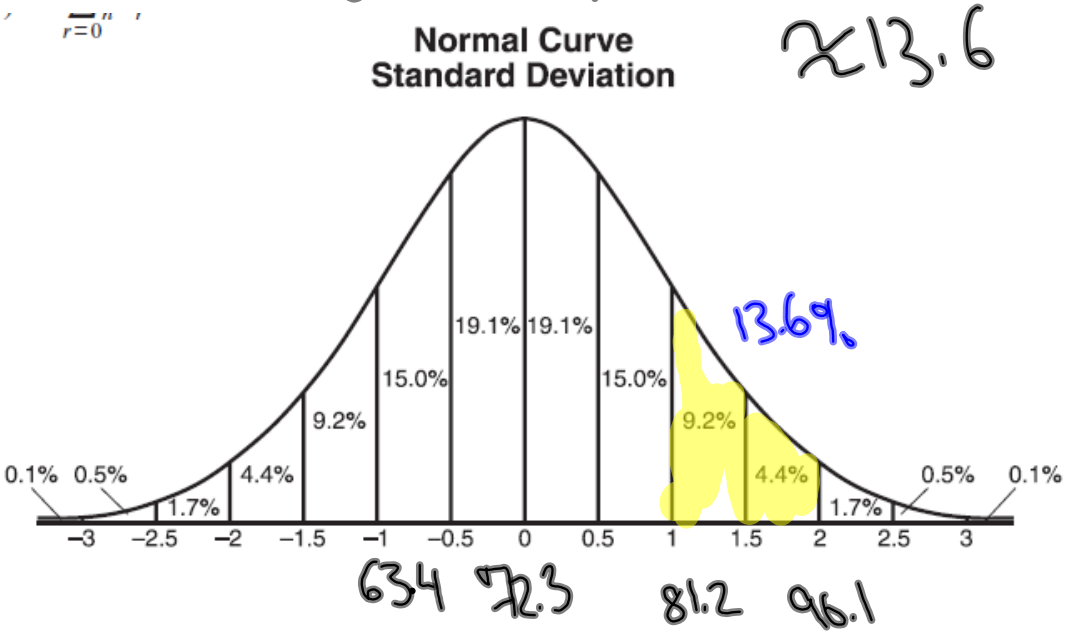
.136 x 184

25 students

2 Professor Bartrich has 184 students in her mathematics class. The scores on the final examination are normally distributed and have a mean of 72.3 and a standard deviation of 8.9. How many students in the class can be expected to receive a score between 82 and 90?

13.6% of 184

≈13.6



3 Given the relation $R = \{(-2,3),(a,4),(1,9),(0,7)\}$. Which replacement for a makes this relation a function?

1)	1
2)	-2
3)	0
4)	4

x's should not repeat

input " " "

4 What is the fifteenth term of the sequence $5, -10, 20, -40, 80, \ldots$?

1)	$-163,840$
2)	$-81,920$
3)	$81,920$
4)	$327,680$

Geometric because you are multiplying to go from one term to the next.

r - common ratio

$r = -2$

$n = 15$

$$a_n = a_1 \cdot r^{n-1}$$

$$a_{15} = 5 \cdot (-2)^{15-1}$$

$$= 5 \cdot (-2)^{14}$$

$$= 5 \cdot (16,384) =$$

5 What is the fourth term in the expansion of $(3x - 2)^5$?

1) $-720x^2$ 2) $-240x$ 3) $720x^2$ 4) $1{,}080x^3$

$1(3x)^5(-2)^0 \quad 5(3x)^4(-2)^1 \quad 10(3x)^3(-2)^2 \quad 10(3x)^2(-2)^3 \quad 5 \quad 1$

$10(3x)^2(-2)^3$

$10 \cdot 9x^2 \cdot -8$

$-720x^2$

6 Evaluate: $10 + \sum_{n=1}^{5}(n^3 - 1)$

End

summation

Substituting into

start

$n=1 \quad (1^3-1) = 0$ +

$n=2 \quad (2^3-1) = 7$ +

$n=3 \quad (3^3-1) = 26$ +

$n=4 \quad (4^3-1) = 63$ +

$n=5 \quad (5^3-1) = 124$

220

$10 + 220$

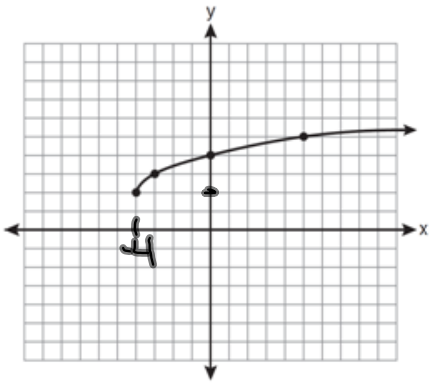
$\boxed{230}$

Answer

Possible x's

Possible y's

7 What are the domain and the range of the function shown in the graph below?



$x \geq -4$

$y \geq 2$

1)	$\{x \mid x > -4\}$; $\{y \mid y > 2\}$
2)	$\{x \mid x \geq -4\}$; $\{y \mid y \geq 2\}$
3)	$\{x \mid x > 2\}$; $\{y \mid y > -4\}$
4)	$\{x \mid x \geq 2\}$; $\{y \mid y \geq -4\}$

8 A linear regression equation of best fit between a student's attendance and the degree of success in school is $h = 0.5x + 68.5$. The correlation coefficient, r, for these data would be

1)	$0 < r < 1$
2)	$-1 < r < 0$
3)	$r = 0$
4)	$r = -1$

Slope of the regression line

$r = .5$

-1
strong neg. correlation

0
weak

1
strong + corr.

9 In the accompanying table, y varies inversely as x

x	3	6	12
y	8	4	z

What is the value of z?

1)	$\frac{1}{2}$
2)	2
3)	3
4)	$\frac{1}{4}$

$$z = \frac{24}{12}$$

$$z = 2$$

$$y = \frac{k}{x}$$

$$8 = \frac{k}{3}$$

$$k = 24$$

→ rewrite with same base

10 The value of x in the equation $4^{2x+5} = 8^{3x}$ is

1)	1	3)	5
2)	2	4)	**−10**

$$2^{2(2x+5)} = 2^{3(3x)}$$

$$2(2x+5) = 3(3x)$$

$$4x+10 = 9x$$

$$x = 2$$

11. Solve for x: $\log_8(x+1) = \frac{2}{3}$

rewrite in exponential form

$8^{\frac{2}{3}} = x+1$

$8^{\frac{2}{3}} = 4$

put in parenthesis in calc

$4 = x+1$

$-1 \quad -1$

$3 = x$

12 How many different six-letter arrangements can be made using the letters of the word "TATTOO"?

letter 'T' repeats 3 times

letter 'O' repeats 2 times

$$\frac{6!}{3!\,2!} = \frac{6\times5\times4\times\cancel{3}\times\cancel{2\times1}}{\cancel{3}\times2\times1\ \cancel{2\times1}}$$

$$\frac{120}{2} = \boxed{60}$$

answer

13 If $f(x) = \sqrt{25 - x^2}$, find $f(3)$.

$$f(3) = \sqrt{25 - (3)^2}$$

$$= \sqrt{25 - 9}$$

$$= \sqrt{16}$$

$$f(3) = 4$$

14 Ginger and Mary Anne are planning a vacation trip to the island of Capri, where the probability of rain on any day is 0.3. What is the probability that during their five days on the island, they have *no* rain on *exactly* three of the five days?

$$_5C_3 \cdot \underset{nr}{.7} \quad \underset{nr}{.7} \quad \underset{nr}{.7} \quad \underset{r}{.3} \quad \underset{r}{.3}$$

r - rain (.3)

nr - no rain (.7)

$$10 \cdot (.7)^3 (.3)^2$$

$$10 \cdot (.343)(.09)$$

$$\boxed{.3087}$$

answer

15 Six golfers had the following scores for nine holes of golf: → put in calc.

38, 38, 43, 45, 46, 48

Find the standard deviation of these scores to the *nearest tenth*. How many scores are within one standard deviation of the mean?

$\sigma x = 3.8$

$\bar{X} = 43$ ← average

39.2 43 46.8

−1 standard deviation

+1 standard deviation

3 scores within one standard deviation