Student Name: _____ Class Name: **Sp 25 Mth 122 College Algebra**

Number of Questions: **25** Instructor Name: **Sizemore, Cristina**

Question 1 of 25

The n^{th} term of a sequence is given. Write the first four terms of the sequence. Express the terms in simplified form when applicable.

$$c_n = 4\left(\frac{-1}{2}\right)^n$$

$c_1 =$ _____

$c_2 =$ _____

$c_3 =$ _____

$c_4 =$ _____

Question 2 of 25

The n^{th} term of a sequence is given. Find the indicated term. Express the term as a fraction in lowest terms.

$a_n = 7n + 1$; find a_{126}.

$a_{126} =$ _____

Question 3 of 25

Write the first five terms of the sequence defined recursively. Express the terms as simplified fractions when applicable.

$$c_1 = 2,\ c_n = -\frac{1}{c_{n-1}}$$

$c_1 =$ _____

$c_2 =$ _____

$c_3 =$ _____

$c_4 =$ _____

$c_5 =$ _____

Question 4 of 25

Evaluate the expression.

$$\frac{9!}{4! \cdot 5!}$$

$\frac{9!}{4! \cdot 5!} =$ _____

Question 5 of 25

Evaluate the expression.

$$\frac{(2n-5)!}{(2n-4)!}$$

$$\frac{(2n-5)!}{(2n-4)!} = \_\_\_\_\_$$

Question 6 of 25

The n^{th} term of a sequence is given. Find the indicated term. Express the term as a simplified fraction.

$d_n = \frac{(3n)!}{3n}$; find d_4

$d_4 = \_\_\_\_\_$

Question 7 of 25

Find the sum. Express the sum as a fraction in lowest terms.

$$\sum_{i=2}^{6} \left(\frac{1}{3}\right)^i$$

$$\sum_{i=2}^{6} \left(\frac{1}{3}\right)^i = \_\_\_\_\_$$

Question 8 of 25

Write the sum using summation notation. There may be multiple representations. Use i as the index of summation.

$$\frac{1}{3}-\frac{1}{9}+\frac{1}{27}-\frac{1}{81}+\frac{1}{243}$$

We can write the sum as $\sum_{i=1}^{5}$ _____ .

Question 9 of 25

Determine whether the sequence is arithmetic. If so, find the common difference.

$17,\ 21,\ 22,\ 23,\ \ldots$

- The sequence is not arithmetic.
- The sequence is arithmetic.

The common difference is $d =$.

Question 10 of 25

Perform the following:

(a) Write a nonrecursive formula for the n^{th} term of the arithmetic sequence $\{a_n\}$ based on the given information. Write numbers as integers or simplified fractions.

$$a_1 = \frac{1}{3},$$
$$d = \frac{1}{4}$$

(b) Find a_9. Write numbers as integers or simplified fractions.

Part 1 of 2

(a) Write a nonrecursive formula for the term of the arithmetic squence $\{a_n\}$ based on the given information.

$$a_1 = \frac{1}{3},$$
$$d = \frac{1}{4}$$

Write numbers as integers or simplified fractions.

$a_n =$ _____

Part 2 of 2

(b) Find a_9.

Write numbers as integers or simplified fractions.

$a_9 =$ _____

Question 11 of 25

Find the sum.

$19+25+31+\ldots+115$

$19+25+31+\ldots+115=$.

Question 12 of 25

Write the first five terms of a geometric sequence $\{a_n\}$ based on the given information about the sequence. Express the terms as integers or simplified fractions.

$a_1=45$ and $a_n=\frac{1}{4}a_{n-1}$ for $n\geq 2$

The first five terms of $\{a_n\}$ are _____, _____, _____, _____, and _____.

Question 13 of 25

Find the sixth term of the geometric sequence from the given information. Express the term as an integer or simplified fraction.

$a_1=15$ and $a_2=-10$

$a_6=$ _____

Question 14 of 25

Find a_1 and r for a geometric sequence $\{a_n\}$ from the given information.

$a_2 = 14$ and $a_7 = 448$

Part 1 of 2

$a_1 =$ ☐

Part 2 of 2

$r =$ ☐

Question 15 of 25

Find the sum of the geometric series, if possible.

$$\sum_{n=1}^{9} 4(3)^{n-1}$$

- ○ The sum does not exist.
- ○ The sum does exist.

The sum is .

Question 16 of 25

For the points $(7, 4)$ and $(-2, 1)$,

(a) Find the exact distance between the points.

(b) Find the midpoint of the line segment whose endpoints are the given points.

Part 1 of 2

(a) The exact distance between the points is _____ .

Part 2 of 2

(b) The midpoint is _____ .

Question 17 of 25

Determine if the given points form the vertices of a right triangle.

$M(4, 0)$, $P(6, -2)$, and $Q(3, -5)$

- The given points do not form the vertices of a right triangle.
- The given points form the vertices of a right triangle.

Question 18 of 25

Solve by applying the zero product property.

$x^2 = 7 - 6x$

If there is more than one solution, separate the answers with commas.

The solution set is $\{$ _____ $\}$.

Question 19 of 25

Solve by using the square root property. Express all values in simplest form.

$$5(w-9)^2+7=52$$

The solution set is $\{$ _____ $\}$.

Question 20 of 25

Solve by using the quadratic formula. Express the solution set in exact simplest form.

$$(4y+3)(y-4)=-2y(7y+16)-17$$

The solution set is $\{$ _____ $\}$.

Question 21 of 25

Solve by completing the square and applying the square root property. Express the solution set in exact simplest form.

$$x^2+14x-5=0$$

The solution set is $\{$ _____ $\}$.

Question 22 of 25

Determine the center and radius of the circle.

$$(x-4)^2+(y+4)^2=9$$

Part 1 of 2

The center is $(\square, \square)$.

Part 2 of 2

The radius is $r=\square$.

Question 23 of 25

Given a circle with center $(-1, -4)$ and radius 3,

(a) Write an equation of the circle in standard form.

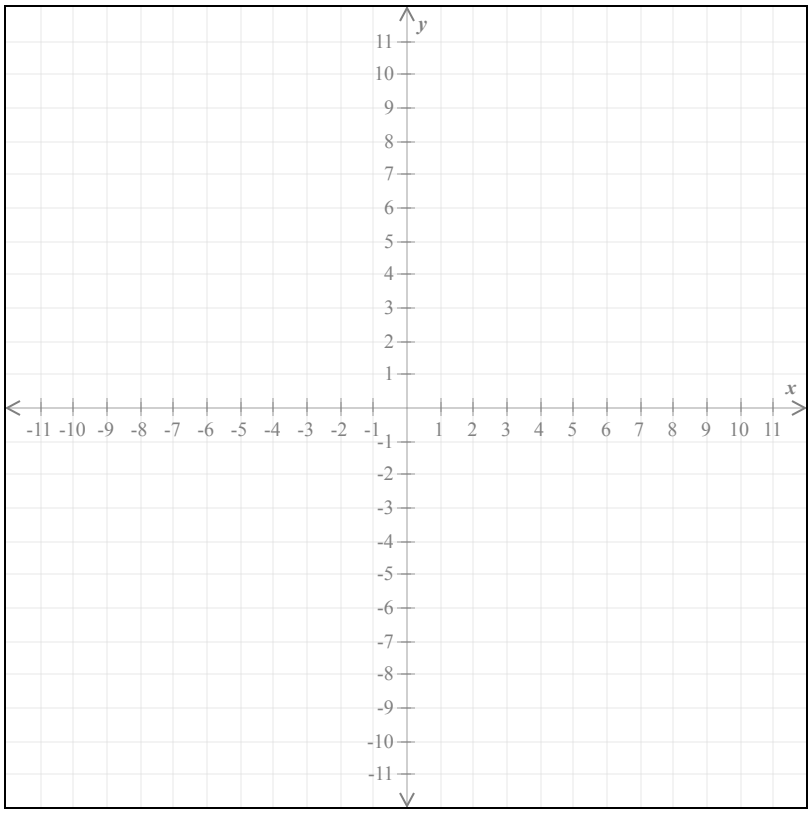
(b) Graph the circle.

Part 1 of 2

(a) An equation of the circle in standard form is ▯.

Part 2 of 2

(b) Graph the equation.



Question 24 of 25

Write the equation in the form $(x-h)^2+(y-k)^2=c$. Then, if the equation represents a circle, identify the center and radius. If the equation represents the degenerate case, give the solution set.

$$x^2+y^2+14x+8y+61=0$$

Part 1 of 2

The equation in standard form is _____ .

The equation represents _____.
(Blank 1,)

Blank 1, Options

- a circle
- the degenerate case

Part 2 of 2

The center is (_____ , _____).

The radius is $r=$ _____ .

Question 25 of 25

A cell tower is a site where antennas, transmitters, and receivers are placed to create a cellular network. Suppose that a cell tower is located at a point $A\,(3,\,4)$ on a map and its range is 1.5 miles. Write an equation, in terms of x and y, that represents the boundary of the area that can receive a signal from the tower. Assume that all distances are in miles.

The equation that represents the boundary of the area that can receive a signal from the tower is _____ .

Class Name: **Sp 25 Mth 122 College Algebra** Number of Questions: **25**

Question 1 of 25

$c_1 = -2$

$c_2 = 1$

$c_3 = -\frac{1}{2}$

$c_4 = \frac{1}{4}$

Question 2 of 25

$a_{126} = 883$

Question 3 of 25

$c_1 = 2$

$c_2 = -\frac{1}{2}$

$c_3 = 2$

$c_4 = -\frac{1}{2}$

$c_5 = 2$

Question 4 of 25

$$\frac{9!}{4!\cdot 5!} = 126$$

Question 5 of 25

$$\frac{(2n-5)!}{(2n-4)!} = \frac{1}{2n-4}$$

Question 6 of 25

$$d_4 = 39{,}916{,}800$$

Question 7 of 25

$$\sum_{i=2}^{6} \left(\frac{1}{3}\right)^i = \frac{121}{729}$$

Question 8 of 25

$$\sum_{i=1}^{5} (-1)^{i+1} \frac{1}{3^i}$$

Question 9 of 25

The sequence is not arithmetic.

Question 10 of 25

Part 1 of 2

$a_n = \frac{1}{4}n + \frac{1}{12}$

Part 2 of 2

$\frac{7}{3}$

Question 11 of 25

1139

Question 12 of 25

The first five terms of $\{a_n\}$ are 45, $\frac{45}{4}$, $\frac{45}{16}$, $\frac{45}{64}$, and $\frac{45}{256}$.

Question 13 of 25

$-\frac{160}{81}$

Question 14 of 25

Part 1 of 2

$a_1 = 7$

Part 2 of 2

$r = 2$

Question 15 of 25

The sum does exist.

The sum is $39{,}364$.

Question 16 of 25

Part 1 of 2

$3\sqrt{10}$

Part 2 of 2

$\left(\frac{5}{2}, \frac{5}{2}\right)$

Question 17 of 25

The given points form the vertices of a right triangle.

Question 18 of 25

$\{1, -7\}$

Question 19 of 25

$\{12, 6\}$

Question 20 of 25

$\left\{-\frac{1}{2}, -\frac{5}{9}\right\}$

Question 21 of 25

The solution set is $\{-7 \pm 3\sqrt{6}\}$.

Question 22 of 25

Part 1 of 2

The center is $(4, -4)$.

Part 2 of 2

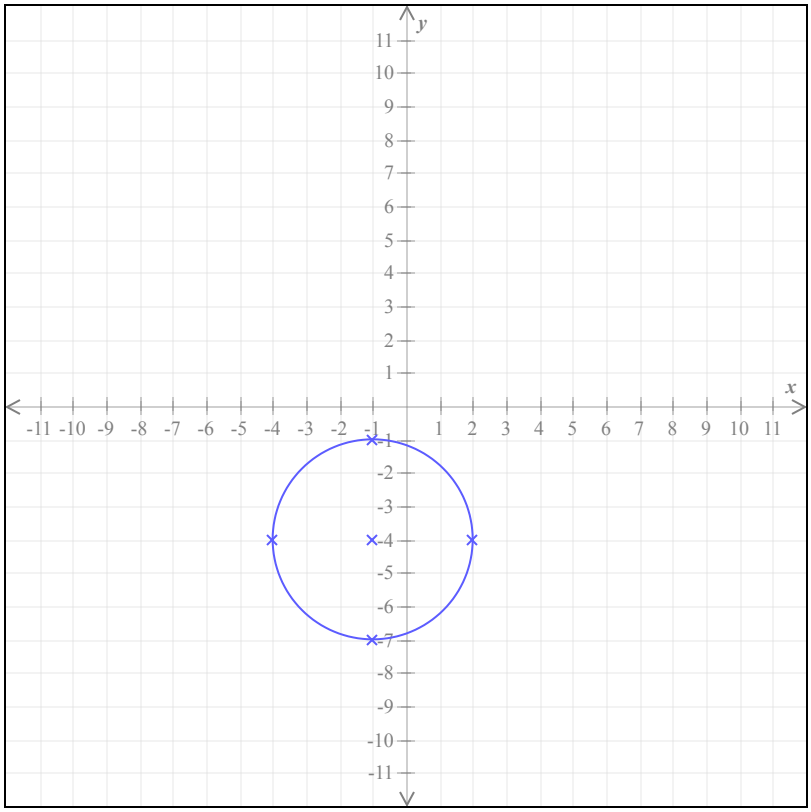
The radius is $r = 3$.

Question 23 of 25

Part 1 of 2

$(x+1)^2+(y+4)^2 = 9.$

Part 2 of 2



Question 24 of 25

Part 1 of 2

$(x+7)^2+(y+4)^2=4$

The equation represents a circle.

Part 2 of 2

The center is $(-7, -4)$.

The radius is $r=2$.

Question 25 of 25

$(x-3)^2+(y-4)^2=2.25$