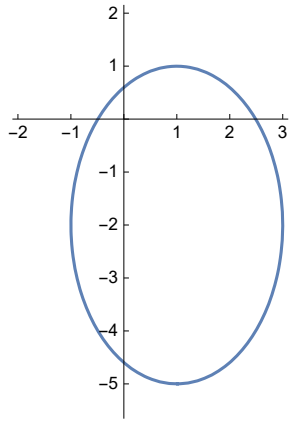


Name:

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1. Write the equation for the following graph:



2. Given the recursive sequence 3, 4, 6, 10, 18, ... find a formula for the general term a_n .

3. Solve the following system:
$$\begin{cases} 2y^2 + xy = 5 \\ 4y + x = 7 \end{cases}$$

4. If the seventh term of an arithmetic sequence is 55 and the twenty-second term is 145, what is the eighteenth term?

5. The center cable of a suspension bridge forms a parabolic arc. The cable is suspended from the tops of two support towers, 800 feet apart. The tops of the towers are 170 feet above the road and the lowest point of the cable is midway between the towers and ten feet above the road. Find the height of the cable above the road at a distance of 100 feet from a tower.

6. A brick staircase has a total of 30 steps. The bottom step requires 100 bricks. Each successive step requires two less bricks than the prior step. How many bricks are required to build the staircase?.

7. Find the center and radius of $x^2 + y^2 + 2x - 8y + 8 = 0$

8. Given the sequence 10, -5, 2.5, -1.25 ... Find the sum of the first 11 terms.

9. The sum of two numbers is 16 and the difference of their squares is 96. Find the two numbers

10. Write the first five terms: $a_n = \frac{(-1)^n}{2n!}$.

11. Write the standard form of the hyperbola with vertices at (1, -5) and (1, 1) and with foci at (1, 2) and (1, -6).

12. A ball is dropped from a height of 6 feet and begins bouncing. The height of each bounce is $\frac{3}{4}$ the height of the previous bounce. Find the total vertical distance the ball travels before coming to a rest.

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By signing below I confirm that I have neither given nor received any unauthorized assistance on this exam. I am in compliance with the conditions specified on the exam with regards to time and materials permitted. I further attest that I have not had any contact with others who have already taken the exam, nor received assistance from any other sources in the taking of this exam.
