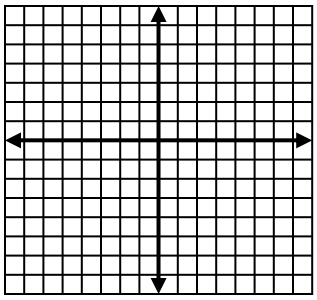
Name_____ **AA2 Semester 2 Final Review #4**

1. Graph $\frac{(x-1)^2}{9} - \frac{(y+2)^2}{16} = 1$



2. Find the vertex of $y = 2x^2 - 16x + 27$

3. Solve for x: $\log_7 53 = x$

4. Solve $\begin{aligned} y &= x^2 - x - 3 \\ y &= x + 5 \end{aligned}$

5. Using $A = P\left(1 + \frac{r}{n}\right)^{nt}$, when will Lucy have \$6400 if she invests \$1200 at 15% interest compounded quarterly?

6. How many different arrangements of the letters in the word **DEDICATED** can be made?

7. Write as a single logarithm.
$\log_3 8 + \log_3 5 - \log_3 4$

8. What is the 5^{th} term in the binomial expansion $(x - 3y)^{11}$?

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9. Find the 5^{th} term of the following

Sequence: $\begin{cases} a_1 = 7; n \geq 2 \\ a_n = a_{n-1} - 2 \end{cases}$

10. In how many ways can a recorder, facilitator, and questioner be chosen in a club containing 14 members?

11. Find $\sum_{k=1}^{12} 4(3)^{k-1}$

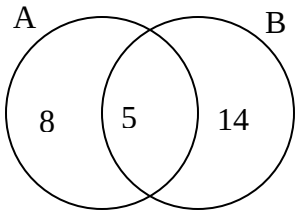
12. Write the recursive rule for the sequence 3,12,48,192,…

13. Which term of the sequence -2,2,6,10,14,… is 2946?

14. A bag contains 8 marbles, 3 red and 5 yellow. A marble is drawn, replaced in the bag, and a second marble is drawn. What is the probability that both marbles drawn are red?

15. Two numbered cubes are rolled. Find the probability that the 2 numbers total 6 or they are equal.

16. Find $P(B \mid A)$



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17. The scores on a test are normally distributed with a mean of 180 and a standard deviation of 10. Find the z-score for a score of 157 on this test.

18. Find the n^{th} term formula for the sequence -4096,2048,-1024,512,…

19. The principal of an elementary school has 400 feet of fencing. She wants to enclose a rectangular region with maximum area. What are the dimensions of the rectangular region?

20. Graph $y = -(x-2)^2 + 3$