Pre-Calculus Name: _____
Extra Review: Units C and D

Chapter 7 (Unit C)

For Questions 1–3, refer to the ellipse represented by the equation $\frac{(x-3)^2}{25} + (y-2)^2 = 1$

1. Find the coordinates of the center.
   A) (2, 3) B) (3, 2) C) (–3, –2) D) (–2, –3)

2. Find the coordinates of the foci.
   F) $(3, 2 \pm 2\sqrt{6})$ G) (–2, 2) , (8, 2) H) $(3 \pm 2\sqrt{6}, 2)$ J) $(2 \pm 2\sqrt{6}, 3)$

3. Find the coordinates of the vertices and co-vertices.
   A) (8, 2) , (–2, 2) , (3, 3) , (3, 1)
   B) (8, 2) , (–2, 2) , (3, 7) , (3 , –3)
   C) (4, 2) , (2, 2) , (3, 3) , (3, 1)
   D) (4, 2) , (2, 2) , (3, 7) , (3, –3)

For Questions 4 and 5, refer to the hyperbola represented by $\frac{(y+2)^2}{36} - x^2 = 1$

4. Write the equations of the asymptotes.
   F) $y - 1 = \pm\ 6(x - 2)$
   G) $y = \pm\ 6x$
   H) $y + 2 = \pm\ 6(x - 1)$
   J) $y + 2 = \pm\ 6x$

5. Find the coordinates of the foci.
   A) $(1 \pm \sqrt{37}, -2)$ B) $(\pm \sqrt{37}, -2)$ C) $(6 \pm \sqrt{37}, -2)$ D) $(0, -2 \pm \sqrt{37})$

6. Write the standard form of the equation of the hyperbola for which $a = 2$, the transverse axis is vertical, and the equations of the asymptotes are $y = \pm 2x$.
   F) $\frac{x^2}{4} - y^2 = 1$ G) $y^2 - \frac{x^2}{4} = 1$ H) $x^2 - \frac{y^2}{4} = 1$ J) $\frac{y^2}{4} - x^2 = 1$

7. Write the standard form of the equation of the parabola with directrix at $y = -4$ and focus at (2, 2) .
   F) $(y-2)^2 = 12(x + 2)$
   G) $y + 1 = 12(x-2)^2$
   H) $(x+2)^2 = 12(y - 2)$
   J) $(x-2)^2 = 12(y + 1)$

Chapter 10 (Unit D)

1. Which of the following is a rule for the *n*th term of the **arithmetic** sequence: $a_5 = 18$, $a_{17} = 66$

a) $a_n = 4n + 2$ b) $a_n = 4n - 2$ c) $a_n = 2n + 4$ d) $a_n = 2n - 4$ e) $a_n = 7n - 17$

2. Find the common ratio of the infinite geometric series whose sum is $\frac{8}{9}$ and first term is $a_1 = \frac{1}{4}$
(Write as a fraction)

3. What is the sum of the series: $-30+15-\frac{15}{2}+\frac{15}{4}\ldots$

4. Write a rule for the sequence: 5, 2, 0.8, 0.32 … and then find the value of the 7^{th} term.

5. Find S_{84} for the **arithmetic** series $12 + 6 + 0 + \ldots$.

6. What is S_{10} for the **geometric** series $2 - 8 + 32 - 128 + \ldots$