REVIEW F
NO CALCULATORS, PLEASE.

Directions: Circle the best answer. Show all Work!

1. Which of the following conic section would represent the graph of $8x^2 - 5y^2 + 4x - 7y - 15 = 0$

a) circle b) ellipse c) parabola d) hyperbola

2. The hypotenuse of a right triangle is 25m long. The length of one leg is 10 m less that twice the other. Find the sum of the lengths of the legs of this triangle.

a) 15 m b) 20m c) 30 m d) 35 m

3. In order to transform the vertex of $y = x^2 + 4x + 4$ to the origin, every point must be translated :

a) 2 units right b) 2 units left c) 4 units right d) 4 units left

4. The zeros of the function $y + 3x^2 = 4(2x - 1)$ are

a) $\frac{4}{3}, 3$ b) $\frac{8}{3}, -1$ c) $\frac{1}{3}, 4$ d) $\frac{2}{3}, 2$

5. Which equation has the same vertex as $y = 2x^2 - 12x + 23$?

a) $y = 2(x+3)^2 + 5$ b) $y = 2(x-3)^2 - 5$ c) $y = 2(x+3)^2 - 5$ d) $y = -2(x-3)^2 + 5$

6. Which of the following hyperbolas has asymptotes with the steepest slopes?

a) $9x^2 - 25y^2 = 225$ b) $25x^2 - 9y^2 = 225$ c) $16x^2 - 4y^2 = 64$ d) $4x^2 - 16y^2 = 64$

7. What is the solution to the equation $5^x = 17$?

a) x=2 B) $x = \log_{10} 2$ c) $x = \log_{10} 17 + \log_{10} 5$ d) $x = \frac{\log_{10} 17}{\log_{10} 5}$

8. $4x^2 - 5y^2 - 16x - 30y - 9 = 0$

What is the standard form of the equation of the conic given above?

a) $\frac{(x-4)^2}{11} - \frac{(y-3)^2}{4} = 1$ b) $\frac{(y+3)^2}{4} - \frac{(x-2)^2}{5} = 1$ c) $\frac{(y-3)^2}{6} - \frac{(x+2)^2}{9} = 1$

d) $\frac{(x-4)^2}{11} + \frac{(y-3)^2}{4} = 1$ e) none of these

9. Simplify $\log_2 8\sqrt{2}$.

a) $\frac{3}{2}$ b) $\frac{5}{2}$ c) $\frac{7}{2}$ d) $\frac{9}{2}$

10. For what values of x is $\sqrt{2x-3}$ defined over the real numbers?

a) $x \geq 0$ b) $x \geq \frac{3}{2}$ c) $x \geq \frac{2}{3}$ d) All values of x

11. How many ways can three Compact Disks (CDs) be selected from a group of seven different disks?

a) 3^7 b) 210 c) 35 d) 21

12. Which of the following is the inverse of $f(x) = 3x + 9$?

a) $f^{-1}(x) = \frac{1}{3}x - 3$ b) $f^{-1}(x) = \frac{1}{3}x + \frac{1}{9}$ c) $f^{-1}(x) = \frac{1}{3x+9}$ d) $f^{-1}(x) = -3x - 9$

13. Solve $|4x - 5| < 15$

a) $-2.5 < x < 5$ b) $x < -2.5$ or $x > 5$ c) All Real Numbers d) $\emptyset$

14. Factor completely $81x^4 - 1$

a) $(9x^2 - 1)^2$ b) $(3x+1)(9x^2+1)(3x-1)$ c) $(3x+1)^2(3x-1)^2$ d) Not factorable

15. Simplify $\frac{2x+5}{4x^2} + \frac{2x-5}{10x}$

a) $\frac{4x^2+25}{20x^2}$ b) $\frac{4x^2-20x-25}{40x^3}$ c) $\frac{4x^2-25}{20x^2}$ d) $\frac{4x^2+25}{40x^3}$