Honors Algebra 2B Final Exam Review Part 4

Name: Key

Date: _____

1. What is the focus of the parabola with equation $y = -\frac{1}{32}x^2$?

VERTEX: (0, 0) $\left|-\frac{1}{32}\right| = \frac{1}{4c}$ $c = 8$

$\frac{1}{32} = \frac{1}{4c}$

Focus: (0, −8)

2. What is the **Length** of the ***minor*** axis on the graph of $\frac{x^2}{100} + \frac{y^2}{64} = 1$?

$b = 8$

$2b = 16$

3. Which conic section is represented by the equation $x^2 + 14y = 6x - y^2 - 9$?

$(x-3)^2 + (y+7)^2 = 49$

CIRCLE

4. Find the coordinates of the center, vertices and foci of the hyperbola,

$\frac{(y-2)^2}{49} - \frac{(x+8)^2}{576} = 1$

CENTER: (−8, 2)

VERTICES: (−8, 9) (−8, −5)

FOCI: (−8, 27) (−8, −23)

5. Write the equation of the parabola with focus (-3, 2), directrix y = 4.

$y = -\frac{1}{4}(x+3)^2 + 3$

6. Write the equation of this conic in **standard form**. **Identify the type of conic**.

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

$\frac{(x-2)^2}{4} - \frac{(y-3)^2}{16} = 1$

HYPERBOLA

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7. $\log x - 4 \log y = \log \frac{x}{y^4}$

True
False

8. $\log_2 7 =$

A. $\log \frac{7}{2}$ B. $\frac{\log 7}{\log 2}$ C. $\frac{\log 2}{\log 7}$ D. $\log\left(\frac{2}{7}\right)$

9. Which expression is equal to $\log x + 4 \log y - 2 \log z$?

A. $\log \frac{xy^4}{z^2}$ B. $-\log \frac{4xy}{2z}$ C. $\log \frac{(xy)^4}{z^2}$ D. $\log \frac{xy^4}{z}$

10. What is the value of x if $17e^{4x} = 85$?

A. $\frac{5}{4}$ B. $\frac{\ln 85}{17 \ln 4}$ C. $\frac{\ln 5}{4}$ D. $\frac{\ln 85 - \ln 17}{\ln 4}$

11. Solve $\log_{\frac{1}{8}} x = -2$

$\left(\frac{1}{8}\right)^{-2} = x$ $x = 64$

12. Evaluate $\log_7 \frac{1}{7}$.

-1

13. Solve each equation algebraically

(a) $\ln(x+6) - \ln(x-4) - \ln x = 0$

$x = 6$

(b) $e^{2x} - 11e^x = -18$

$x = \ln 9, \ln 2$

(c) $2\log_5(x-2) = \log_5 36$

$(x-2)^2 = 36$

$x - 2 = 6$ $x - 2 = -6$

$x = 8$ $x = -4$

20) Describe the vertical asymptotes and holes for the graph of the rational function.

(14) $y = \dfrac{1}{x^2 + 4x + 3}$

V. A. $x = -3$

$x = -1$

NO HOLES

21) Sketch the graph of the rational function $y = \dfrac{3x^2 - 4x + 1}{x^2 + x - 6}$

(15)