

EVHS Algebra 2 Unit 6 Practice Test (Part 1)

1. Evaluate the following expressions

$$(a) \log_{625} 25 + \log_{\frac{1}{2}} \left(\frac{1}{8} \right) - \log_3 243$$

$$(b) \frac{\log_{0.2} \left(\frac{1}{25} \right)}{\log_{\frac{1}{\sqrt{2}}} \left(\frac{\sqrt{2}}{2} \right)}$$

$$(c) \ln(e)^{(\log_3 9 - \log_4 16)}$$

2. Simplify the following expressions into a single expression to the assigned base:

$$(a) (\text{change to base 4}) \log_{\sqrt{2}} \left(\frac{\sqrt{8}}{e^2} \right) - \log_4 36$$

$$(b) (\text{change to base 2}) 2 \log_4 (x-2) - \log_2 (x^2 - 5x + 6)$$

$$(c) (\text{change base 3}) \log_3 (x^2 - 4) - \log_{\sqrt{3}} (x-2) - (\log_3 (x+3) - \log_{\sqrt{3}} (x+3))$$

$$\log 2 = 0.3$$

$$\log 3 = 0.48$$

3. Given $\log 7 = 0.84$, evaluate the following expressions to the hundredth.

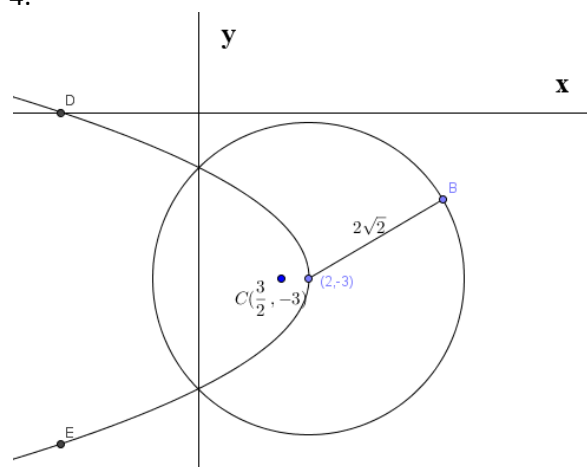
$$\log(e) = 0.43$$

$$(a) \log 25 - \log_2 5$$

$$(b) \log .84$$

$$(c) \log_4 9$$

4.



As shown in the left is schema of the trajectories of two particles in a high energy testing chamber

(a) Particle B is on the trajectory of a circle with center at $(2, -3)$. What is the equation of the circle?

(b) The other particle follows the trajectory of a parabola, with the vertex of the parabola coincides with the center of the circle in (a). The focus of the parabola is at $C(\frac{3}{2}, -3)$. What is the equation of the parabola?

(c) What are the possible locations for these two particles to collide?

(d) If the x-intercept of the parabola is where the wall of the testing chamber is, and point E has the same x-coordinate as D, what is the distance between D and E?