

Answers to the Midterm 1 Review Problems

NOTE: These are provided so you can check if your answers are correct BUT on the exam I expect you to show ALL of your work, not just answers.

If you want to know whether your solution methods are correct and complete visit office hours or the MPC.

1. ... $f'(a) = 16a - 1$

2. The answer is the point $(a, f(a))$ where a is the negative solution of the equation $a^2 + 2a - 1 = 0$. So the answer is approximately $(-2.414, 8.2414)$.

3. ...

4. ...

5.

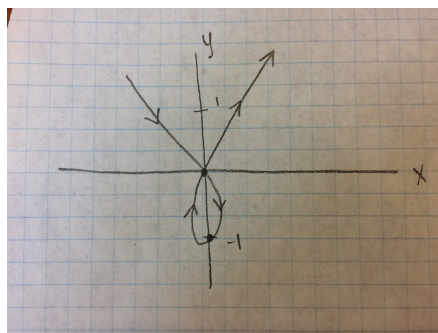
$$V(d) = \begin{cases} \frac{4}{3}\pi d^3 & 0 \leq d < 3 \\ 36\pi + 36\pi(d-3) & 3 \leq d \leq 18 \end{cases}$$

Domain is $[0, 18]$.

6. In each case when you eliminate the parameter you get $y = 2x + 3$.

The interval $[0, 3]$ with the second pair of parametric equations gives you the same line segment.

7. ...

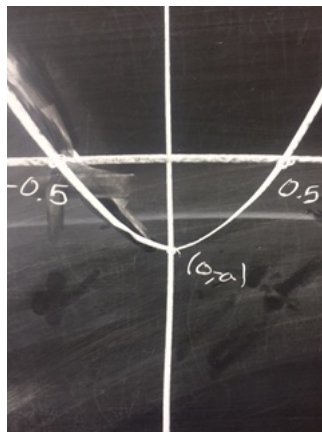


8.

9. (a) No
(b) No
(c) Yes
(d) No
(e) Yes

PS: Can you find the inverse functions for (c) and (e)?

10. (a) $[1, 0.5)$ and $(0.5, 1]$
(b) $(0.5, 0.5)$



(c)

11. ...

12. (a) Domain is $(1, \infty)$; range is (∞, ∞) .
(b) $f^{-1}(x) = e^{e^x}$. The domain is (∞, ∞) and the range is $(1, \infty)$.