

Answers to Team Competition

1. $y = 17x - 31$

2. 0

3. $f'(x) = 3x^2e^x + x^3e^x$

4. 12,500 people per year

5. $r = \pi^{-\frac{1}{3}}$ ft. and $h = \pi^{-\frac{1}{3}}$ ft.

6. $(-4, -64)$

7. $(1, -1)$

8. $e^x + 3$

9. Maximum at $(0, 2)$ and minimum at $(\pi, -2)$.

10. $\frac{5\pi}{6}$

11. $20\sqrt{5}$ ft/s

12. 3817

13. $f(x) = e^x + x - 2\cos x + 5$

14. 8

15. $f'(x) = x^x(\ln x + 1)$