

Calculus — Problem Set 3

2. If the light is not on, then the switch is not on.

4. If x is not a complex number, then x is not a real number.

6. $(x+3)^2 + 4 = 0$

8. $(2 + \sqrt{3}, 1 + \sqrt{3})$
 $(2 - \sqrt{3}, 1 - \sqrt{3})$

10. $x = -1$
 $x \approx 0.268$
 $x \approx 3.732$

12. $R_1 = \frac{acR_2}{kmR_2 + bkR_2 - bc}$

14. $\frac{43\sqrt{21}}{21}$

16. $\frac{5}{8}$

18. $(ab - 2x^2y^3)(a^2b^2 + 2abx^2y^3 + 4x^4y^6)$

20. 10

22. $a - b$

24. $\frac{8}{27}\pi \text{ cm}^3 \approx 0.9308$

Calculus — Problem Set 4

2. $(-2.3772, -3.3772)$
 $(-1.2739, -2.2739)$
 $(0, -1)$
 $(1.6511, 0.6511)$

4. $\frac{10}{3}$

6. $4 - \frac{\sqrt{2}}{2}$

8. $\sin^2 \theta$

10. Contrapositive: If your thumb does not hurt, then you did not hit your thumb with a hammer.

12. $x = \frac{3}{2}, -5$

14. $6x^3 - 11x^2 + 14x - 5$

16. $r = \frac{r_1 r_2}{v(r_1 + r_2)}$

18. $5\sqrt{2} - 2\sqrt{5}$

20. $\frac{7}{2}$

22. $2(hw + hl + lw)\text{units}^2$

24. D

