

Problem Set 108

2. $3\sqrt{-4}$

4. $1 \angle -36.870^\circ = 1 \angle 323.130^\circ$

6a. True

b. False; $y = \sqrt[3]{x}$ is a counterexample

c. False; $y = |x|$ is a counterexample

d. True

8. $3\pi \int_0^\pi \sin^4 x \, dx$

10. $y = (\ln 256)x - \ln 256 + 4$

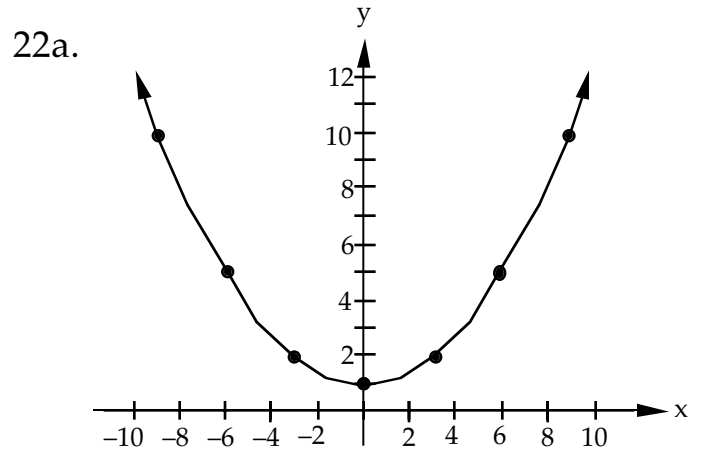
12. Diverges

14. $a_n = (-1)^n \frac{n^2}{3^n}, \quad n = 1, 2, 3, \dots$

16. 10

18. $\frac{1}{4} \tan^2(2x) - \ln \sqrt{\sec(2x)} + C$ or
 $\frac{1}{4} \sec^2(2x) + \ln \sqrt{\cos(2x)} + C$

20. $\frac{2}{\sqrt{1-4x^2}} + \arcsin(2x) + C$



b. $\frac{dy}{dx} = \frac{2}{9}x$

c. $y = \frac{1}{9}x^2 + 1$

24. Local maximum: $x = 0$

Local minima: $x = -1, 4$

Inflection points: $x = 1 \pm \frac{\sqrt{21}}{3}$