

1. converges ; area is  $\frac{\pi}{2}$
2. diverges ; area is infinite
3. converges ; area is 6
4. converges ; area is 4
5. converges ; area is  $\frac{\pi}{9} - \ln \sqrt[3]{2}$
6. converges ; area is  $\frac{2\pi}{9}$
7. converges ; area is  $\frac{1}{2}$
8. converges ; area is 2
9. diverges ; area is infinite
10. converges ; area is 1000
11. converges ; area is 1000
12. converges ; area is  $\frac{\pi}{2}$
13. converges ; area is  $\frac{1}{2}$
14. diverges ; area is infinite
15. diverges ; area is infinite