Geometry Homework #6 – Answer Key

1) Radius = 5, Area = 84, Inscribed = 9π, Circumscribed = 25π

2) Radius = 14, Side = $14\sqrt{3}$, Area = $147\sqrt{3}$, Inscribed = 49π, Circumscribed = 196π

3) Apothem = $2\sqrt{39}$, Area = $100\sqrt{39}$, Inscribed = 156π, Circumscribed = 256π

4) 1,260 degrees, 360 degrees, 140 degrees, 40 degrees

5) Radius = $3\sqrt{2}$, Side = 6, Area = 36, Inscribed = 9π, Circumscribed = 18π

6) Exact surface area = 192π Exact volume = 360π
Approximate surface area ≈ 602.88 Approximate volume ≈ 1130.4

7) Exact surface area = 980π Exact volume = 2800π
Approximate surface area ≈ 3077.2 Approximate volume ≈ 8792

8) Exact surface area = 196π Exact volume = $\frac{1372}{3}\pi$
Approximate surface area ≈ 615.44 Approximate volume $\approx 1436.02\overline{6}$

9) Exact surface area = 208π Exact volume = 320π
Approximate surface area ≈ 653.12 Approximate volume ≈ 1004.8

10) Exact surface area = 90π Exact volume = 100π
Approximate surface area ≈ 282.6 Approximate volume ≈ 314

11) Exact surface area = 324π Exact volume = 972π
Approximate surface area ≈ 1017.36 Approximate volume ≈ 3052.08

12) Exact surface area = 136π Exact volume = 208π
Approximate surface area ≈ 427.04 Approximate volume ≈ 653.12

13) Exact surface area = 224π Exact volume = 392π
Approximate surface area ≈ 703.36 Approximate volume ≈ 1230.88

14) Exact surface area $= 576\pi$ Exact volume $= 2304\pi$
Approximate surface area ≈ 1808.64 Approximate volume ≈ 7234.56

15) Exact surface area $= 56\pi$ Exact volume $= 48\pi$
Approximate surface area ≈ 175.84 Approximate volume ≈ 150.72

16) Exact surface area $= 480\pi$ Exact volume $= 600\pi$
Approximate surface area ≈ 1507.2 Approximate volume ≈ 1884

17) Exact surface area $= 16\pi$ Exact volume $= \frac{32}{3}\pi$
Approximate surface area ≈ 50.24 Approximate volume $\approx 33.49\overline{3}$

18) Exact surface area $= 640\pi$ Exact volume $= 1024\pi$
Approximate surface area ≈ 2009.6 Approximate volume ≈ 3215.36

19) Exact surface area $= 36\pi$ Exact volume $= 16\pi$
Approximate surface area ≈ 113.04 Approximate volume ≈ 50.24

20) Volume of sphere $= 288\pi$ Volume of cylinder $= 432\pi$
Volume of cone $= 72\pi$
Twice the volume of the cone plus the volume of the sphere equals the volume of the cylinder. The ratio of the volume of the sphere to the cylinder is exactly two thirds.