Review 2

1. (a) $\frac{2}{27}\left(3^{3/2}-8\right)$.
   (b) $\frac{1}{3}\left[\left(\frac{\pi^2}{4}+4\right)^{3/2}-8\right]$.
   (c) $\frac{2\pi+3\sqrt{3}}{8}$.
2. $\frac{6\pi}{5}$.
3. (a) $\frac{\pi}{12}$.
   (b) $\frac{1}{2}$.
4. (a) $\frac{3\pi}{4}$.
   (b) $\frac{7\sqrt{3}}{2}-\pi$.
5. (a) $(y-1)^2=4(x-1)$.
   (b) $(x-1)^2-3(y-2)^2=1$.
6. (a) vertexes: $(-1,1),(3,1),(1,0),(1,2)$; foci: $(1\pm\sqrt{3},1)$.
   (b) vertexes: $(0,-3),(-4,-3)$; foci: $(-2\pm\sqrt{13},-3)$; asymptotes: $y+3=\pm\frac{3}{2}(x-2)$.
7. 6, $\bar{i}-2\bar{j}+\bar{k}$, 0.
8. $\cos^{-1}\left(\frac{6}{\sqrt{42}}\right)$.
9. $\frac{\sqrt{6}}{2}$.
10. $\frac{x-1}{3}=\frac{y-2}{3}=\frac{z-3}{3}$.
11. $\cos^{-1}\left(\frac{6}{\sqrt{42}}\right)$.
12. $\sqrt{\frac{3}{7}}$
13. $x+2y-z=2$.
14. $\frac{5}{\sqrt{6}}$.
15. $\frac{x-1}{0}=\frac{y-2}{1}=\frac{z-3}{-1}$.