

1. A: -2  
B:  $40\sqrt{5}$   
FINAL:  $-80\sqrt{5}$
2. A: 8  
B:  $-\frac{29}{4}$   
  
C:  $\frac{28}{3}$   
  
D:  $\frac{23}{3}$   
FINAL: -4
3. A:  $\frac{1}{3} \ln\left(\frac{18}{7}\right)$   
  
B:  $\frac{3}{2} \ln(2)$   
  
C:  $\frac{118092}{\ln(3)}$   
D: 1  
FINAL:  $\ln\left(\frac{108}{7}\right)$
4. A:  $e^{12}$   
B:  $\sqrt{2}$   
C:  $\ln(3)$   
D:  $4^{2018}$   
FINAL: 4053
5. A:  $\frac{7}{162}$   
  
B:  $\frac{\pi}{3}$   
  
C: 39  
D:  $\frac{3}{2}\pi$   
FINAL:  $53 + 5\pi$
6. A:  $\frac{96}{5}\pi$   
  
B:  $\frac{512}{5}\pi$   
  
C:  $\frac{16}{3}\pi$   
  
D:  $\frac{4\sqrt{6}}{3}$   
FINAL:  $1904\pi + 4\sqrt{6}$
7. A:  $\frac{\pi}{2}$   
  
B:  $\frac{\pi^2}{32}$   
  
C:  $\frac{\pi}{4} - \frac{1}{2}$   
  
FINAL:  $\pi^2 + 24\pi - 16$
8. A:  $\frac{123}{32}$   
  
B:  $\frac{13}{3}\pi$   
  
C:  $\frac{32\sqrt{3}}{9}\pi$   
  
D:  $\frac{16}{9}\pi$

$$\text{FINAL: } 246 + 55\pi + 32\pi\sqrt{3}$$

9. T, F, T, F, F, T, T

$$\text{FINAL: } 35$$

10. A:  $\frac{\pi}{4}$

B:  $-1$

C:  $\frac{1}{24}$

D:  $\frac{1}{9}$

$$\text{FINAL: } 3\pi + 10$$

11. A: 17

B:  $\frac{4}{5}$

C:  $\ln\left(\frac{2\sqrt{3}}{3} + 1\right)$

D:  $2\ln(2) - 1$

$$\text{FINAL: } 26 + \frac{2\sqrt{3}}{3}$$

12. A:  $\ln(185)$

B:  $3\ln(3) + 3$

$$\text{FINAL: } \ln\left(\frac{185}{27}\right) - 3.$$

13. FINAL: 0

14. FINAL:  $\frac{1}{e}$