

Selected Answers to HW #4

Remember to explain all answers in your solutions. You will not receive credit for merely repeating an answer given here. If an answer is not given below, it is either because the solution is trivial or because disclosure of the answer would reveal too much of the solution to the problem.

It is possible that one or more of the answers given below is incorrect. There is a trade-off between speed and accuracy. The faster selected answers are posted to the web site, the more likely that a mistake could have been made in the rush to prepare them. You should develop the ability to evaluate the accuracy of any information you rely on. If you suspect that an answer below is incorrect, please let me know as soon as possible.

1. $v_{od} = 2.1 \text{ V}$
2. $v_{od} = 2.1 \text{ V}$ [Note: The output voltages due to the two sides of the Wheatstone bridge alone are around -207 V and 210 V , which far exceed that power supply limits. However, in the actual circuit, both sides are supplying input voltages at the same time, and the common-mode voltage is greatly suppressed. Thus, the output voltage limits are not exceeded.]
3. $v_{int2} - v_{int1} = 27 \text{ mVpp}$; $v_{od} = 270 \text{ mVpp}$
4. [v_{int2} and v_{int1} not given]; $v_{ocm} = 3.4 \text{ mVpp}$
5. $A_d = 70 \text{ V/V}$; [A_{cm} not given; be sure to explain your answer]
6. $R_{5a} = 75 \text{ k}\Omega$; $R_{5b\max} = 225 \text{ k}\Omega$; $\text{CMRR}_{\min} = 80 \text{ dB}$