

Section 12-1 Analog-to-Digital Conversion

1. The waveform shown in Figure 12-45 is applied to a sampling circuit and is sampled every 3 ms. Show the output of the sampling circuit. Assume a one-to-one voltage correspondence between the input and output.

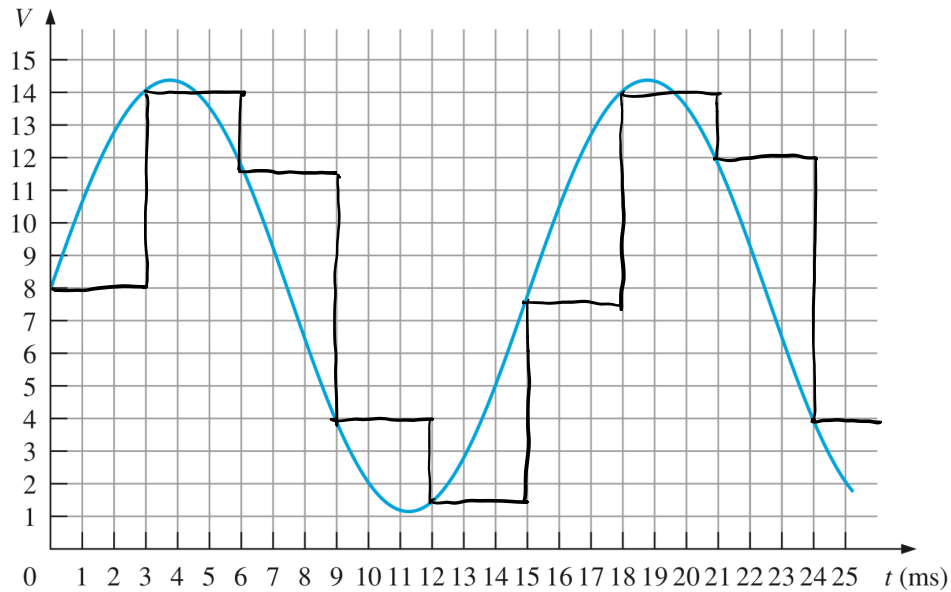


FIGURE 12-45

2. The output of the sampling circuit in Problem 1 is applied to a hold circuit. Show the output of the hold circuit.

10. How many comparators are required to form an 8-bit flash converter?

$$2^8 - 1 = 255$$

17. Determine the output of the DAC in Figure 12–48(a) if the sequence of 4-bit numbers in part (b) is applied to the inputs. The data inputs have a low value of 0 V and a high value of +5 V.

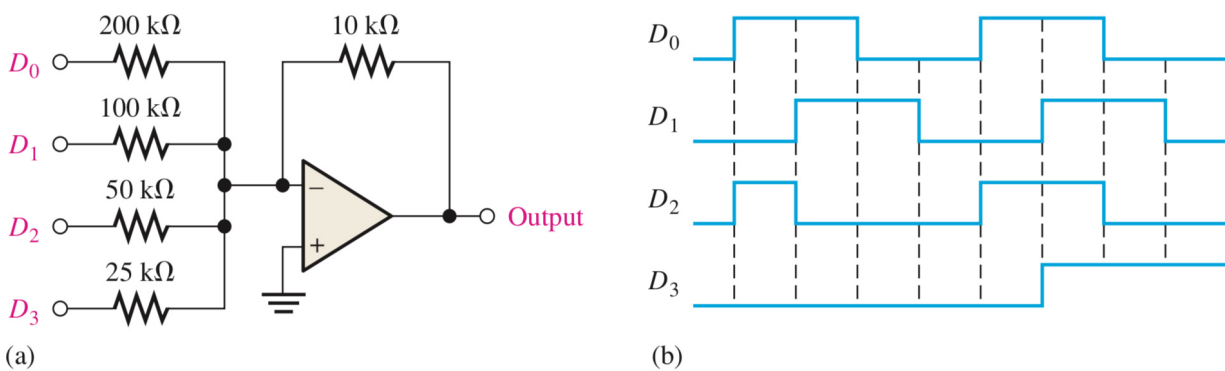


FIGURE 12–48

18. Repeat Problem 17 for the inputs in Figure 12–49.

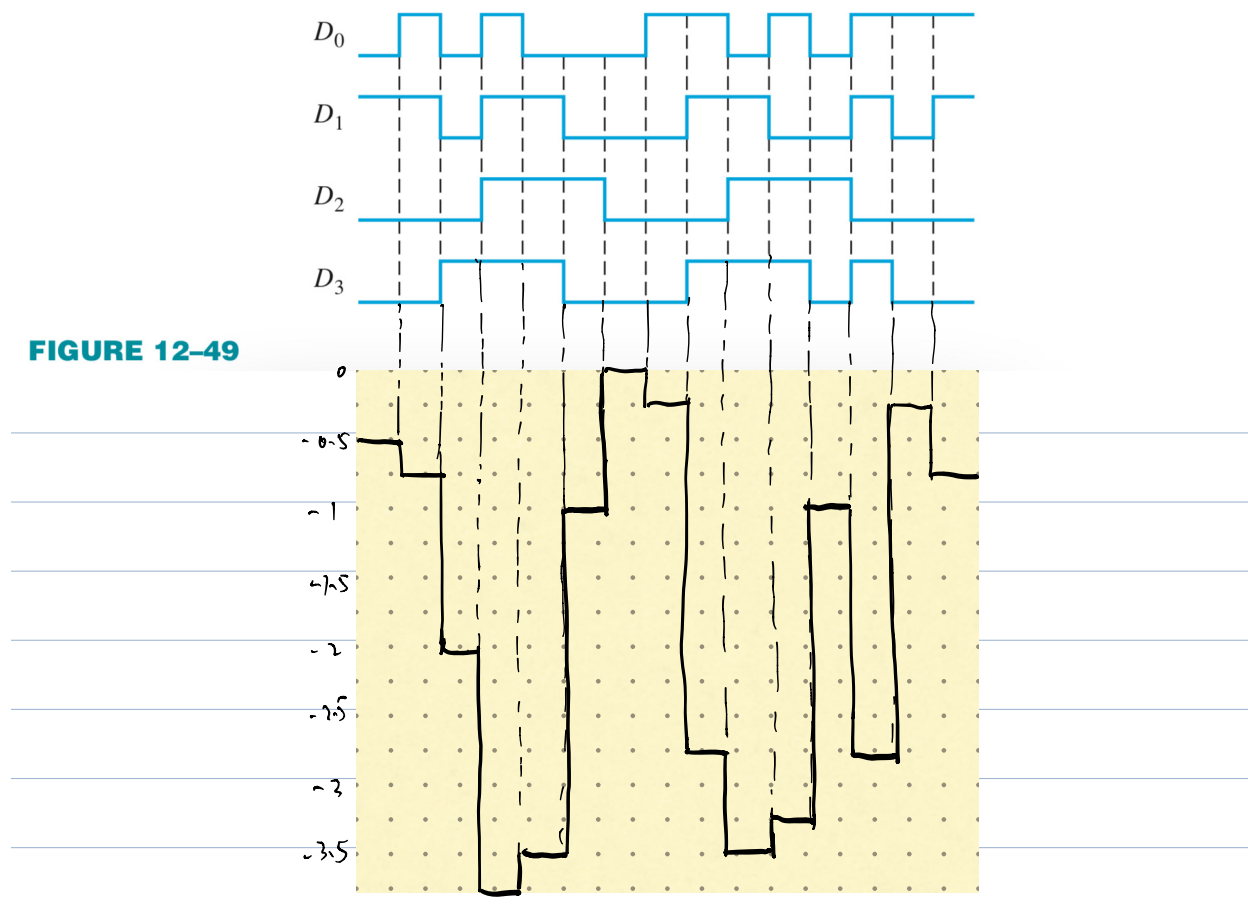


FIGURE 12–49

24. Fill in the appropriate functional names for the digital signal processing system block diagram in Figure 12-51.

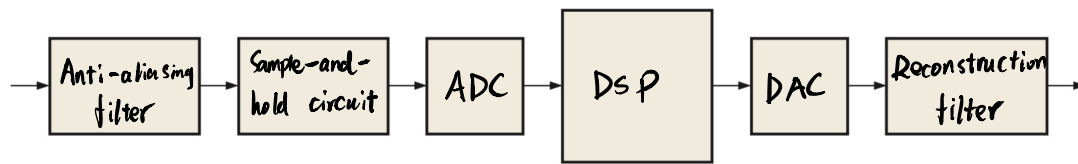


FIGURE 12-51