

Exap 29

$$1) 50822_{10} \rightarrow X_9$$

$$\begin{array}{r|l} 50822 & 9 \\ \hline 50814 & 5646 \\ \textcircled{8} & 5643 \\ & \textcircled{3} \\ & 627 \\ & 621 \\ & \textcircled{6} \\ & 69 \\ & 63 \\ & \textcircled{6} \\ & 7 \\ & \textcircled{7} \end{array}$$

$$50822_{10} = 76638_9$$

$$2) 85667_9 \rightarrow X_{10}$$

$$\begin{aligned} 8 \cdot 9^4 + 5 \cdot 9^3 + 6 \cdot 9^2 + 6 \cdot 9 + 7 &= 52488 + 3645 + 486 + 54 + 7 = \\ &= 56680 \end{aligned}$$

$$85667_9 \rightarrow 56680_{10}$$

$$3) 10101_5 \rightarrow X_{15}$$

$$5^4 + 5^2 + 1 = 651$$

$$10101_5 \rightarrow 651_{10}$$

$$651_{10} \rightarrow 2D6_{15}$$

$$\begin{array}{r|l} 651 & 15 \\ \hline 645 & 43 \\ \textcircled{6} & 30 \\ & \textcircled{13} \\ & 15 \\ & \textcircled{2} \end{array}$$

$$4) 68,82_{10} \rightarrow X_2$$

$$68,82 = 68 + 0,82$$

$$64 + 4 = 2^6 + 2^2 = 1000100_2$$

$$0,82 = 0,11010_2$$

$$\underline{1,64}$$

$$\underline{1,28}$$

$$\underline{0,56}$$

$$\underline{1,12}$$

$$\underline{0,24}$$

$$68,82_{10} \rightarrow 1000100,11010_2$$

$$5) 25,23_{16} \rightarrow X_2$$

$$25,23_{16} = \underline{0010}, \underline{0101}, \underline{0010}, \underline{0011}_2 \approx 100101,001_2$$

$$6) 63,56_8 \rightarrow X_2$$

$$63,56_8 = \underline{110}, \underline{011}, \underline{101}, \underline{110}_2 = 110011,10111_2$$

$$7) 0,110101_2 \rightarrow X_{16}$$

$$\underline{1101}, \underline{0100}_2 = D4_{16}$$

$$0,110101_2 = 0,D4_{16}$$

$$8) 0,10111_2 \rightarrow X_{10}$$

$$2^{-1} + 2^{-3} + 2^{-4} + 2^{-5} + 2^{-6} = 0,5 + 0,125 + 0,0625 + 0,03125 + 0,015625 = 0,734375_{10}$$

$$\text{Answer: } 0,73438_{10}$$

$$9) B7,93_{16} \rightarrow X_{10}$$

$$11 \cdot 16 + 7 + \frac{9}{16} + \frac{3}{256} = 183,57421875$$

$$\text{Answer: } 183,57422$$

$$10) 94_{10} \rightarrow X_4$$

$$94 = 89 + 5$$

$$\text{Answer: } 1000001000_4$$

$$11) \{^11\} \{^12\} \{^13\} 21_7 \rightarrow X_{10}$$

$$-1 \cdot 7^4 - 2 \cdot 7^3 - 3 \cdot 7^2 + 2 \cdot 7 + 1 = -\underline{3219}_{10}$$

$$12) 10010010_2 \rightarrow X_{10}$$

$$32 + 8 + 2 = \underline{44}_{10}$$

$$13) \overset{5}{1} \overset{4}{0} \overset{3}{0} \overset{2}{1} \overset{1}{0} \overset{0}{1} \overset{-1}{0} \overset{-2}{0} \overset{-3}{1} \overset{-4}{0} \overset{-5}{1} \rightarrow X_{10}$$

$$z = \frac{1 + \sqrt{5}}{2}$$

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In [2]: 1 z = (1 + 5**0.5) / 2
        2
        3 x_10 = z**5 + z**2 + z**0 + (z**-3) + (z**-6)
        4 print(x_10)
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15.000000000000002

Answer: 15