

American Computer Science League

2021-2022 • Contest 2: Shorts • Intermediate Division Solutions

1. Prefix/Infix/Postfix $\begin{aligned}62^{\wedge}6-5/862+/-5/ &= (62^{\wedge})6-5/8(62+)-5/ \\ &= (366-)5/(88/)-5/ \\ &= (305/)1-5/ \\ &= (61-)5/ \\ &= (55/) \\ &= 1\end{aligned}$	B. 1
2. Prefix/Infix/Postfix $\begin{aligned}/ * + - 545^{\wedge}14/93 &= / * + (-54)5(^14)(/93) \\ &= / * (+ (54-)5)(14^{\wedge})(93/) \\ &= / (* (54-5+)(14^{\wedge}))(93/) \\ &= (/ (54-5+14^{\wedge}*) (93/)) \\ &= 54-5+14^{\wedge}*93//\end{aligned}$	E. $54-5+14^{\wedge}*93//$
3. Bit-String Flicking $\begin{aligned}00100 \text{ OR } 10100 \text{ AND NOT } (01111 \text{ OR } 00101) \\ &= 00100 \text{ OR } 10100 \text{ AND NOT } 01111 \\ &= 00100 \text{ OR } (10100 \text{ AND } 10000) \\ &= 00100 \text{ OR } 10000 \\ &= 10100\end{aligned}$	A. 10100
4. Bit-String Flicking $\begin{aligned}(\text{LCIRC-2 } (10011 \text{ AND } (\text{NOT } 11101) \text{ OR } (\text{RSHIFT-2 } 11010))) \\ &= (\text{LCIRC-2 } (10011 \text{ AND } 00010 \text{ OR } 00110)) \\ &= (\text{LCIRC-2 } (00010 \text{ OR } 00110)) \\ &= (\text{LCIRC-2 } 00110) \\ &= 11000\end{aligned}$	C. 11000
5. LISP $\begin{aligned}(\text{CAR } (\text{CDR } '((01)(321)(241)(32)))) \\ &= (\text{CAR } '((321)(241)(32))) \\ &= (321)\end{aligned}$	C. (3 2 1)

