

```

1:
2: *****
3: /q1_ans/quest1_ans.txt.f90
4:
5: question One
6: =====
7:
8: [Part A]
9:
10: 4 5 1 3 6 2
11: a + b - (c * d) / f + 5.0**e
12:
13: 6 3 1 4 2 7 5
14: a + f * (b - c) / (d - 3) - e * f
15:
16: 3 1 6 2 4 5
17: b * (c / d) - (f + a) / 3.0 * e
18:
19: 1 3 2 4 5 6
20: ((f - e) * 4 ** c) * a / d - b
21:
22: 3 2 6 4 1 5
23: a ** b ** c + d / (e + f) * 2
24:
25:
26: [Part b]
27:
28: I. -51.0
29:
30: II. REAL
31:
32: III. Operator Numeric Result Data Type
33:
34: ** 9.0 REAL
35: * 35.0 REAL
36: / 0 INTEGER
37: - -33.0 REAL
38: - -42.0 REAL
39: - -51.0 REAL
40: + -51.0 REAL
41: *****
42:
43:
44: *****
45: /q2_ans/fraction.f90
46:
47: PROGRAM fraction
48: !** Take a fraction either proper or improper and reduce it to its lowest
49: !** terms.
50:
51: IMPLICIT NONE
52:
53: INTEGER :: a,b,c,gcd,i,bin,ain
54:
55: PRINT*, "Please read in the numerator"
56: READ*, ain
57: PRINT*, "Please read in the denominator"
58: READ*, bin
59:
60: PRINT '(/"Numerator ="', i)', ain
61: PRINT '(/"Denominator ="', i, /)', bin
62:
63: a=ABS(ain) ! Force fraction to be positive
64: b=ABS(bin) ! for the purpose of the calculation
65: gcd=1
66:
67: ! ** Calculate the upper limit of the DO loop

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68: ! ** either of the below statements for "c" will do
69:
70: c=MOD(MAX(a,b),MIN(a,b)) !** remainder
71: c=MIN(a,b,FLOOR(MAX(a,b)/2.0)) !** Follows
72: IF (c .EQ. 0) c=MIN(a,b)
73:
74: IF ((a .NE. b) .AND. (b .NE. 0) .AND. (a .NE. 0)) THEN !* Check unique cases)
75: DO i=2,c
76: IF ((MOD(a,i) == 0) .AND. (MOD(b,i) == 0)) THEN !* Check for com. denom.
77: gcd=i
78: PRINT*, "Found a new factor : ", i
79: ENDDIF
80: END DO
81: PRINT*, ""
82: PRINT*, "Numerator =" ,a/gcd/(ain/ABS(ain))
83: PRINT*, "Denominator =" ,b/gcd/(bin/ABS(bin))
84: ELSE
85: !** Note the SIGN function not necessary to get the marks here
86: !** if interested please see if you can work out how it works.
87: IF (a .EQ. b) PRINT*, "The numerator equals denominator : reduces to ", &
88: IF (b .EQ. 0) PRINT*, "SIGN(1,CEILING(REAL(ain)/bin))", "/1"
89: IF (a .EQ. 0) PRINT*, "denominator = zero => fraction is not defined"
90: IF (a .EQ. 0) PRINT*, "The nominator is zero giving a zero fraction"
91: ENDDIF
92:
93: END PROGRAM fraction
94:
95: *****

```