

July 1st

$$\frac{13}{29} = \frac{1}{a + \frac{1}{b + \frac{1}{c + \frac{1}{d}}}}$$

To find 4 integer values, one possible solution is:

$$a + \frac{1}{b + \frac{1}{c + \frac{1}{d}}} = \frac{29}{13}$$

Hence

$$a + \frac{1}{b + \frac{d}{dc + 1}} = \frac{29}{13}$$

Therefore

$$a + \frac{dc + 1}{bcd + b + d} = \frac{29}{13}$$

If we assume there are positive integer solutions, a can only be 1 or 2

Let's assume a=2

Then

$$\frac{dc + 1}{bcd + b + d} = \frac{3}{13}$$

A quick inspection suggests we can make c=2 and d=1, leaving

$$\frac{1 \times 2 + 1}{b \times 2 \times 1 + b + 1} = \frac{3}{13}$$

Giving

$$3b + 1 = 13$$

Hence 4 integer solutions are **$a = 2$ $b = 4$ $c = 2$ $d = 1$**