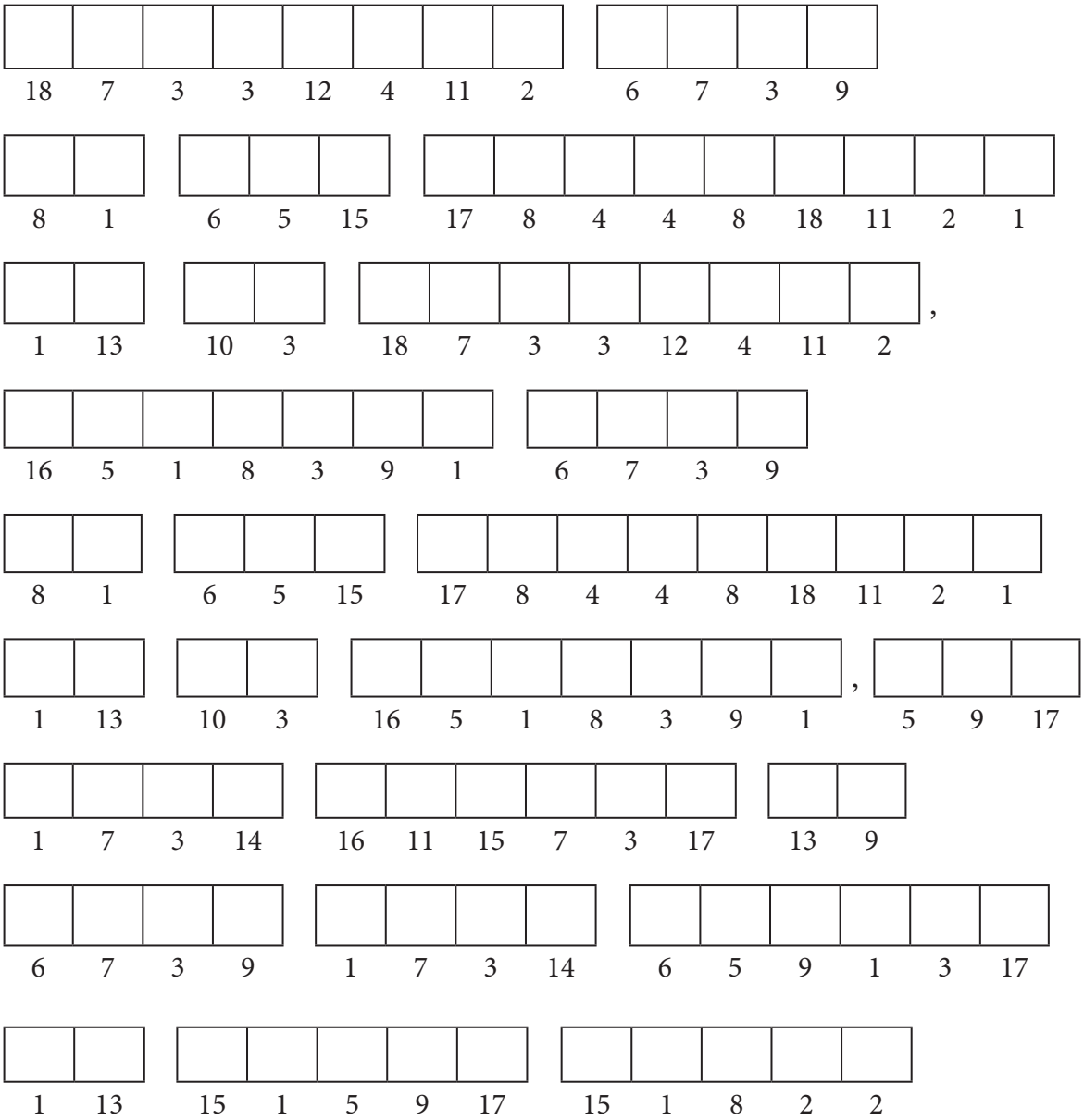
PUZZLE SHEET

Logarithm laws

Why were the saints, saints? Because they were …



Questions

Simplify each expression.

1 $\log(10) + \log(2) - \log(4)$

2 $\log(3) + \log(4) - \log(6)$

3 $\log(40) - \log(8) + \log(3)$

4 $\log(96) - \log(6) - \log(4)$

5 $\log(25) + \log(4)$

6 $\log(20) + \log(2) + \log(25)$

7 $\log(42) - [\log(6) + \log(7)]$

8 $\log(24) - \log(12) + \log(4)$

9 $\log(4) + \log(21) - \log(12)$

10 $\log(5) + \log(6) - \log(3)$

11 $2 - \log(50) + \log(9)$

12 $2\log(6) - \log(4)$

13 $3\log(10) - 2\log(5)$

14 $\log(7) + 2\log(3) - \log(21)$

15 $3\log(3) + \log(6) - 2\log(9) + \log(3)$

16 $\log_x\left(\frac{xy}{z}\right) + \log_x\left(\frac{yz}{x}\right) + \log_x\left(\frac{xz}{y}\right)$

17 $2\log_x(xy) + \log_x(x^4y) - \log_x(xy^3)$

18 $\log_x\left(\frac{y}{x}\right) + \log_x\left(\frac{xy}{z}\right) + \log_x\left(\frac{x}{y}\right)$

Solutions

A 2

B 1

C $\log_x\left(\frac{xy}{z}\right)$

D 5

E $\log(15)$

F $\log(4)$

H 0

I $\log(8)$

L $\log(2)$

N $\log(7)$

O $\log(40)$

P $\log_x(xyz)$

R $\log(9)$

S $\log(6)$

T $\log(5)$

U $\log(18)$

W 3

Y $\log(3)$