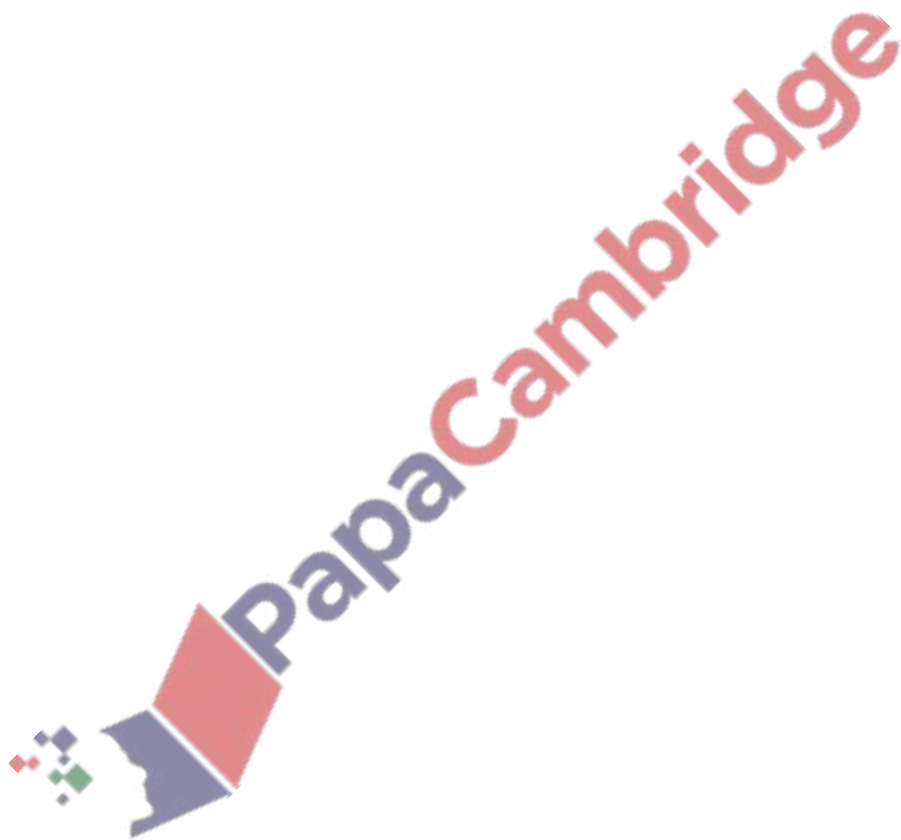


1. Nov/2023/Paper\_0606/11/No.6

(a) Write  $3 \lg x - \frac{1}{2} \lg 4 + 2$  as a single logarithm to base 10. [3]

(b) Solve the equation  $2 \log_a 4 - 3 \log_4 a - 5 = 0$ , giving your answers in exact form. [5]



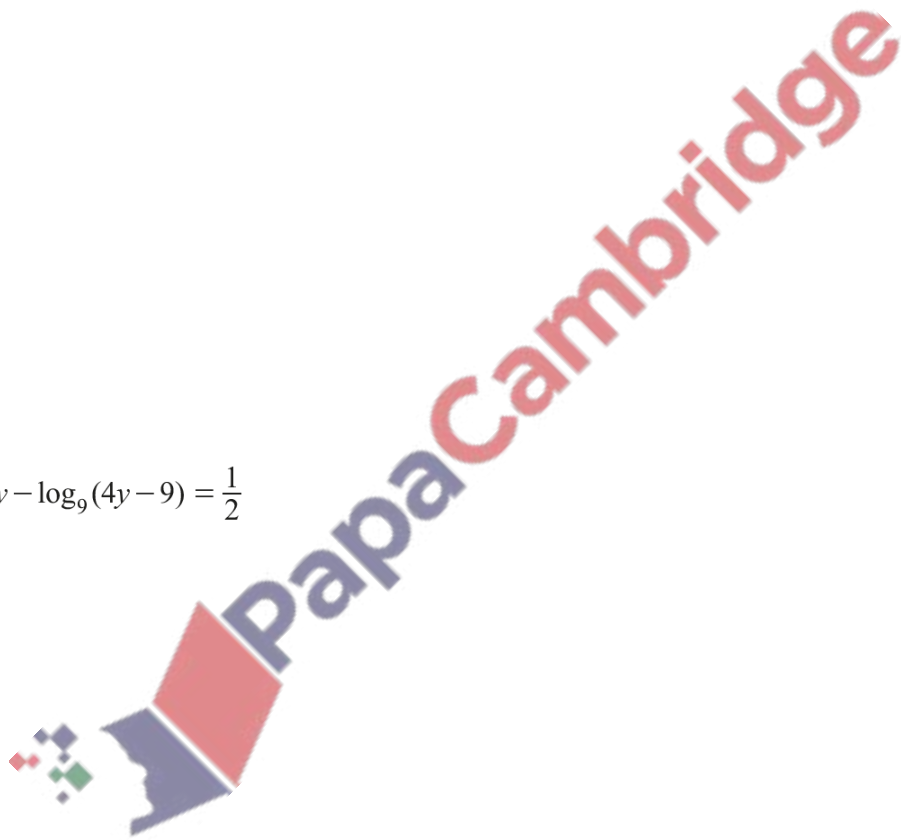
Solve the following equations.

(a)  $\frac{(e^{x+1})^2}{\sqrt{e^x}} = 10$

[4]

(b)  $2 \log_9 y - \log_9(4y - 9) = \frac{1}{2}$

[5]



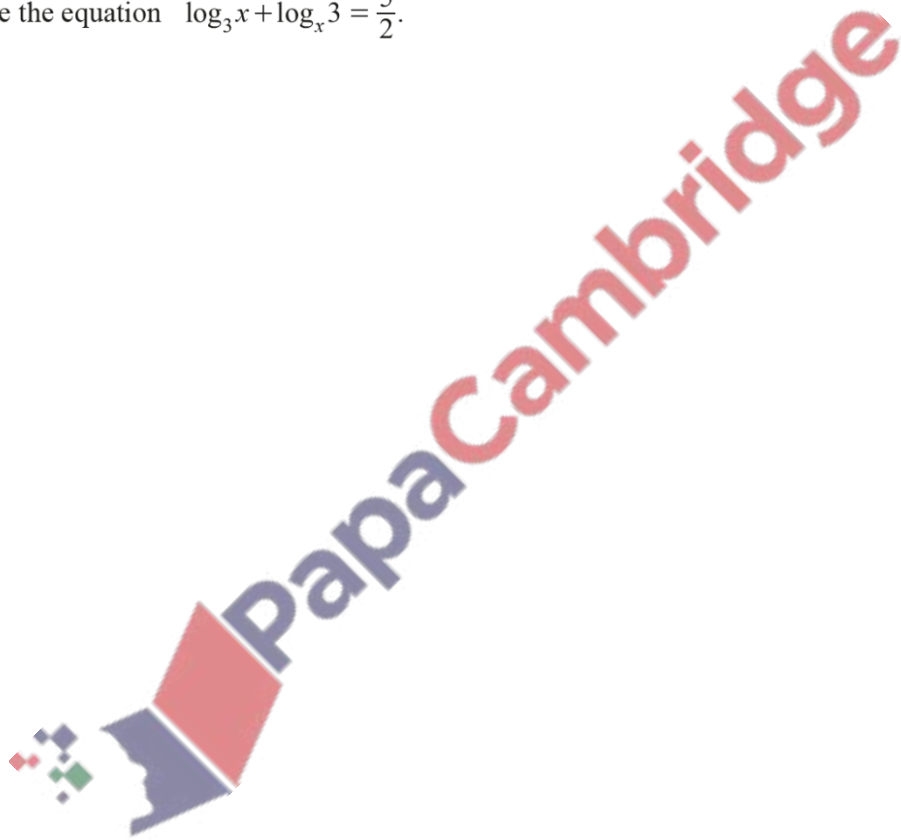
3. March/2023/Paper\_0606/12/No.4

(a) Write  $3 \lg x - 2 \lg y^2 - 3$  as a single logarithm to base 10.

[3]

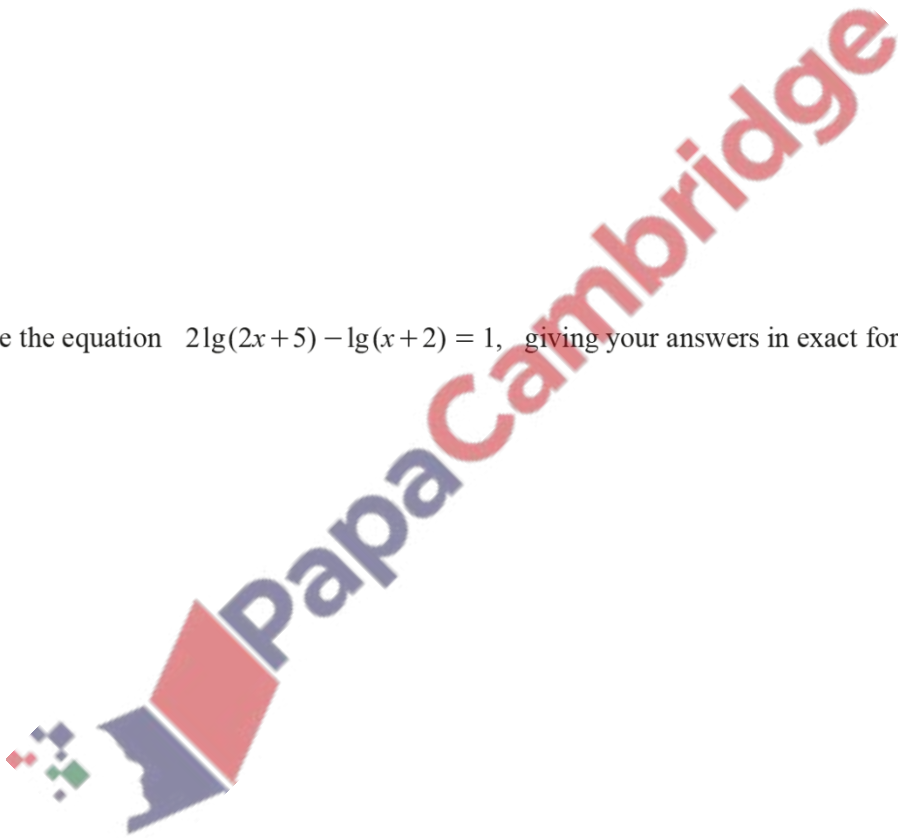
(b) Solve the equation  $\log_3 x + \log_x 3 = \frac{5}{2}$ .

[5]



(a) Find the exact solutions of the equation  $6p^{\frac{1}{3}} - 5p^{-\frac{1}{3}} - 13 = 0$ . [4]

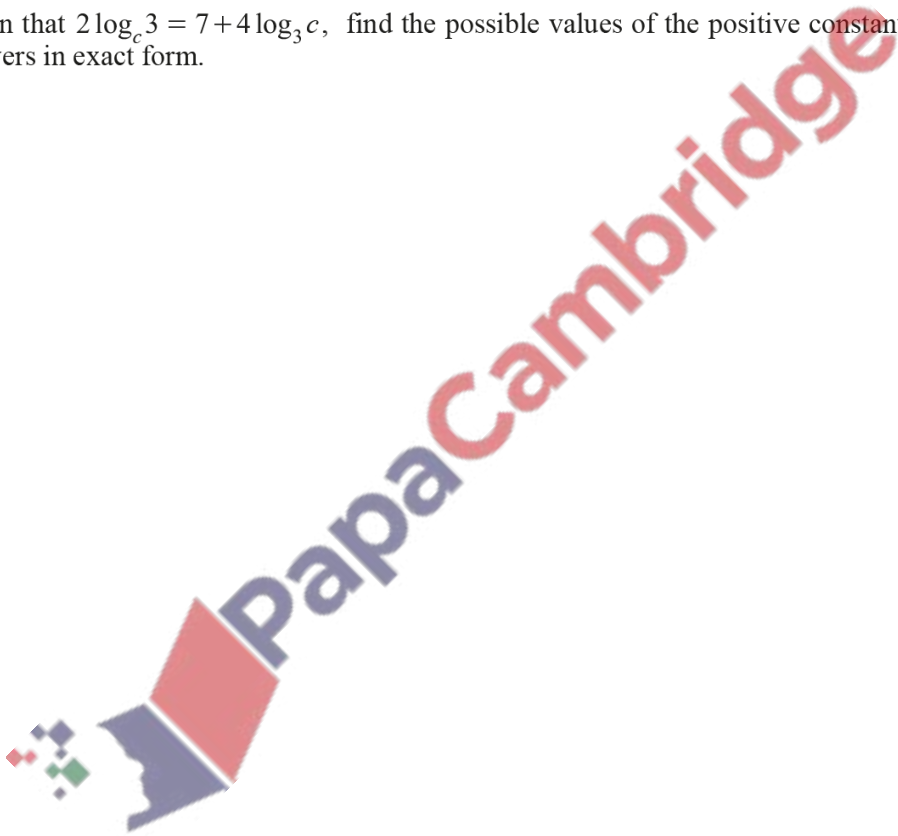
(b) Solve the equation  $2\lg(2x+5) - \lg(x+2) = 1$ , giving your answers in exact form. [6]



5. June/2023/Paper\_0606/13/No.3

- (a) Write  $3 + 2\lg a - \frac{1}{2}\lg(4b^2)$ , where  $a$  and  $b$  are both positive, as a single logarithm to base 10. Give your answer in its simplest form. [3]

- (b) Given that  $2\log_c 3 = 7 + 4\log_3 c$ , find the possible values of the positive constant  $c$ , giving your answers in exact form. [5]



6. June/2023/Paper\_0606/21/No.4

(a) Solve the equation  $5^{2y-1} = 6 \times 3^y$ , giving your answer correct to 3 decimal places. [3]

(b) Solve the equation  $e^{2x} - 4 + 3e^{-2x} = 0$ , giving your answers in exact form. [4]

