Zero test
(Elementary Mathematics)
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Naghiyev Said 201 ADB 100

Questions paper No:1 (Group 1)

1) $f(-\frac{1}{3}) = \frac{x}{3} - \frac{1}{3x^3} - x^2$

$(-\frac{1}{3}) \cdot \frac{1}{3} - \frac{1}{3 \cdot (-\frac{1}{3})^3} + (\frac{1}{3})^2$

$-\frac{1}{9} + \frac{1}{\frac{1}{9}} - \frac{1}{9}$

$-\frac{1}{9} + 9 - \frac{1}{9}$

$8\frac{7}{9} = 8.777$

2) $(\frac{1}{4})^{x-3} = 8^{3x-1}$

$\frac{1}{4^{x-3}} = 8^{3x-1}$

$\frac{1}{2^{2x-6}} = 2^{9x-3}$

$2^{-2x+6} = 2^{9x-3}$

$-2x+6 = 9x-3$

$9 = 11x$

$x = \frac{9}{11} = 0.818181$

3) $\frac{5a-2x}{4a} = 2$

$5a - 2x = 8a$

$-2x = 3a$

$x = -\frac{3}{2}a = -1.5a$

4) $\lg(x-3) - 4\lg 2 = 1$

$\lg((x-3) \cdot (2^{-4})^{\frac{1}{4}}) = 1$

$\lg((x-3) \cdot \frac{1}{16}) = 1$

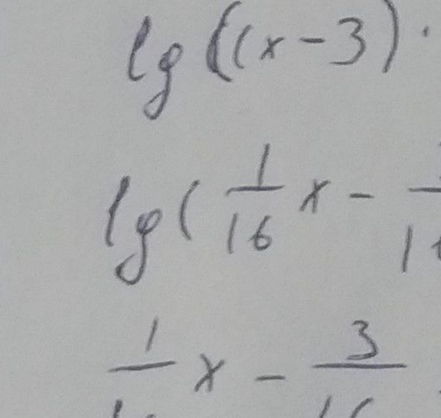
$\lg(\frac{1}{16}x - \frac{3}{16}) = 1$

$\frac{1}{16}x - \frac{3}{16} = 10^1$

$x - 3 = 160$

$x = 163$

5)



$\cos\alpha = \frac{3}{\sqrt{4^2+3^2}}$

$\cos\alpha = \frac{3}{5}$

$\cos A = \frac{3}{5} = 0.6$