

AGORA É COM VOCÊ! - PARTE 01

01.

a) $\log_b(x \cdot y) = \log_b x + \log_b y = -2 + 3 = 1$

b) $\log_b(x/y) = \log_b x - \log_b y = -2 - 3 = -5$

c) $\log_b(y^2/\sqrt{x}) = \log_b y^2 - \log_b \sqrt{x}$
 $2 \cdot \log_b y - \log_b x^{1/2}$
 $2 \cdot \log_b y - 1/2 \cdot \log_b x$
 $2 \cdot 3 - 1/2 \cdot 2 = 6 - 1 = 5$

d) $\log_b\left(\frac{x \cdot \sqrt{y}}{b}\right) = \log_b x + \log_b \sqrt{y} - \log_b b$
 $\log_b x + \log_b y^{1/2} - \log_b b$
 $-2 + \log_b y^{1/2} - 1$
 $-2 + (1/2 \cdot 1) - 1 = -5/2$

02.

a) $\log a + \log b + \log c = \log(a \cdot b \cdot c)$

b) $3 \cdot \log_2 a + 2 \cdot \log_2 c - \log_2 b =$
 $\log_2 a^3 + \log_2 c^2 - \log_2 b =$
 $\log_2 a^3 \cdot c^2 - \log_2 b =$
 $\log_2(a^3 \cdot c^2/b)$

c) $\log_3 a - \log_3 b - 2 =$
 $\log_3 a - \log_3 b - 2 \cdot \log_3 3 =$
 $\log_3 a - \log_3 b - \log_3 3^2 =$
 $\log_3(a/b) - \log_3 9 =$
 $\log_3(a/9b)$

03.

a) $\log(15) =$
 $\log(3 \cdot 5) =$
 $\log 3 + \log 5 =$
 $0,30 + 0,47 = 0,77$

b) $\log(49) =$
 $\log 7^2 =$
 $2 \cdot \log 7 =$
 $2 \cdot 0,84 = 1,68$

c) $\log(108) =$
 $\log(27 \cdot 4) =$
 $\log(3^3 \cdot 2^2) =$
 $\log 3^3 + \log 2^2 =$
 $3 \log 3 + 2 \log 2 =$
 $3 \cdot 0,47 + 2 \cdot 0,30 =$
 $1,41 + 0,6 = 2,01$

d) $\log(5\sqrt{7}) =$
 $\log 5 + \log \sqrt{7} =$
 $\log 5 + 1/2 \log 7 =$
 $0,7 + 1/2 \cdot 0,84 =$
 $0,7 + 0,42 = 1,12$

e) $\log(7,5) =$
 $\log(15/2) =$
 $\log 15 - \log 2 =$
 $0,77 - 0,30 = 0,47$

f) $\log(10,5) =$
 $\log(21/2) =$
 $\log(7 \cdot 3/2) =$
 $\log 7 + \log 3 - \log 2 =$
 $0,84 + 0,47 - 0,30 = 1,01$

g) $\log(120) =$
 $\log(12 \cdot 10) =$
 $\log 12 + \log 10 =$
 $\log(4 \cdot 3) + \log 10 =$
 $\log 4 + \log 3 + \log 10 =$
 $\log 2^2 + \log 3 + \log 10 =$
 $2 \cdot \log 2 + \log 3 + \log 10 =$
 $2 \cdot 0,30 + 0,47 + 1 = 2,07$

h) $\log(350) =$
 $\log(35 \cdot 10) =$
 $\log(7 \cdot 5) + \log 10 =$
 $\log 7 + \log 5 + \log 10 =$
 $0,84 + 0,70 + 1 = 2,54$

i) $\log(16) =$
 $\log 2^4 =$
 $4 \cdot \log 2 =$
 $4 \cdot 0,30 = 1,2$

j) $\log(4\sqrt{3}) =$
 $\log(4 \cdot \sqrt{3}) =$
 $\log 4 + \log \sqrt{3} =$
 $\log 2^2 + \log 3^{1/2} =$
 $2 \cdot \log 2 + 1/2 \cdot \log 3 =$
 $2 \cdot 0,30 + 1/2 \cdot 0,47 =$
 $0,60 + 0,235 = 0,835$

04. $\log_2 b - \log_2 a = 5$
 $\log_2(b/a) = 5$
 $b/a = 2^5$
 $b/a = 2^5$
 $b/a = 32$



05.

$$\log 2 = a$$

$$\log 16 =$$

$$\log 2^4 =$$

$$4 \cdot \log 2 =$$

$$4a$$

06.

$$\log 1,8 =$$

$$\log (18/10) =$$

$$\log 18 - \log 10 =$$

$$\log (6 \cdot 3) - \log 10 =$$

$$\log 6 + \log 3 - \log 10 =$$

$$\log (2 \cdot 3) + \log 3 - \log 10 =$$

$$\log 2 + \log 3 + \log 3 - \log 10 =$$

$$0,30 + 0,48 + 0,48 - 1 =$$

$$1,26 - 1 = 0,26$$

$$07. \log 2 = 0,3,$$

$$\log(3,2) =$$

$$\log(32/10) =$$

$$\log 32 - \log 10 =$$

$$\log 2^5 - \log 10 =$$

$$5 \cdot \log 2 - \log 10 =$$

$$5 \cdot 0,3 - 1 = 0,5$$

08.

$$\log A = \log 7 + \log 5 - \log 3$$

$$\log A = \log(7 \cdot 5) - \log 3$$

$$\log A = \log 35 - \log 3$$

$$\log A = \log(35/3)$$

$$A = 35/3$$

$$09. \log 2 = 0,3$$

$$(\log 2^4 + \log 8^{1/2}) : \log 2^2 =$$

$$(\log 2^4 + \log 8^{1/2}) : \log 2^2 =$$

$$(4 \cdot \log 2 + 1/2 \cdot \log 2^3) : 2 \cdot \log 2 =$$

$$(4 \cdot 0,3 + 3/2 \cdot 0,3) : 2 \cdot 0,3 =$$

$$(1,2 + 0,45) : 0,6 =$$

$$1,65 : 0,6 = 2,75$$

10.

$$a) F \quad b) V \quad c) V \quad d) V$$

AGORA É COM VOCÊ! - PARTE 02

01.

$$a) \log_2 3 / \log_2 5$$

$$b) \log_2 5 / \log_2 10$$

$$c) 2 / \log_2 3$$

$$d) \log_2 3 / \log_2 e$$

02.

$$a) \log_3 2 =$$

$$\log 2 / \log 3 =$$

$$0,3 / 0,48 = 0,625$$

$$b) \log_5 3 =$$

$$\log 3 / \log 5 =$$

$$0,48 / 0,7 = 0,686$$

$$c) \log_2 5 =$$

$$\log 5 / \log 2 =$$

$$0,7 / 0,3 = 2,3$$

$$d) \log_3 100 =$$

$$\log 100 / \log 3 =$$

$$\log 10^2 / \log 3 =$$

$$2 \cdot \log 10 / \log 3 =$$

$$2 \cdot 1 / 0,48 = 4,1\bar{6}$$

$$e) \log_4 18 =$$

$$\log 18 / \log 4 =$$

$$\log(2 \cdot 9) / \log 2^2 =$$

$$\log 2 + \log 9 / 2 \cdot \log 2 =$$

$$\log 2 + \log 3^2 / 2 \cdot \log 2 =$$

$$\log 2 + 2 \cdot \log 3 / 2 \cdot \log 2 =$$

$$0,3 + 2 \cdot 0,48 / 2 \cdot 0,3 =$$

$$0,3 + 0,96 / 0,6 =$$

$$1,26 / 0,6 = 2,1$$

$$f) \log_{36} 0,5 =$$

$$\log 0,5 / \log 36 =$$

$$\log(5/10) / \log(12 \cdot 3) =$$

$$\log 5 - \log 10 / \log 12 + \log 3 =$$

$$\log 5 - \log 10 / \log(4 \cdot 3) + \log 3 =$$

$$\log 5 - \log 10 / \log 4 + \log 3 + \log 3 =$$

$$\log 5 - \log 10 / \log 2^2 + \log 3 + \log 3 =$$

$$\log 5 - \log 10 / 2 \cdot \log 2 + \log 3 + \log 3 =$$

$$0,7 - 1 / 2 \cdot 0,3 + 0,48 + 0,48 =$$

$$-0,3 / 1,56 = -0,1923$$

03.

$$a) \log_{10} 5 =$$

$$\log_e 5 / \log_e 10 =$$

$$\ln 5 / \ln 10 =$$

$$1,6 / 2,3 = 0,69$$

$$b) \log_2 10 =$$

$$\log_e 10 / \log_e 2 =$$

$$\ln 10 / \ln 2 =$$

$$2,3 / \ln 2$$