Task. The curve $y = 1/a + bx$ passes through the point $(1, -1)$ and its gradient at that point is 2. Find values of a and b.

Solution. Probably instead of "gradient" there should be "derivative". In this case the problem can be solved as follows.

Since the curve passes through the point $(-1, 1)$, we have that

$$y(-1) = 1,$$

that is

$$1/a + b(-1) = 1,$$
$$1/a = 1 + b,$$
$$a = \frac{1}{1+b}.$$

Moreover,

$$y'(x) = (1/a + bx)' = b.$$

In particular,

$$2 = y'(-1) = b,$$

so

$$b = 2.$$

Therefore

$$a = \frac{1}{1+b} = \frac{1}{1+2} = \frac{1}{3}.$$

Thus

$$y(x) = 3 + 2x.$$

Answer. $a = 1/3$, $b = 2$.