Given:

f(x) = ax + b

f-1(x) = bx + a

One of the properties of reverse functions is that:

(f-1(y)) ' = 1 / f '(x)

This gives us:

b = 1/a

1. **ab = 1**

Also:

f(a) = a2 + b

f-1(f(a)) = a = b \* (a2 + b) + a

Thus:

b2 = -b \* a2  that is:

(2) **a2  = -b**

Similarly,

f-1(b) = b2 + a

f( f-1(b)) = b = a \* (b2 + a) + b

Thus:

(3) **b2 = -a**

Multiplying the sides of (3) by **b** :

b3 = -ab , but ab = 1 (from (1)) thus **b3 = -1**

So, **b = -1**

But **ab = 1**,

Thus **a = -1**  
Finally, **the wanted answer is**: a + b = -1 + -1 = -2