Positive integers a and b are such that the graphs of $y = ax + 5$ and $y = 3x + b$ intersect the x-axis at the same point. What is the sum of all possible x-coordinates of these points of intersection?

Intersection with x-axis when $y = 0$

$$ax + 5 = 0 \Rightarrow x = -\frac{5}{a}$$

$$3x + b = 0 \Rightarrow x = -\frac{b}{3}$$

So $$-\frac{5}{a} = -\frac{b}{3}$$

$$\Rightarrow ab = 15$$

Since a, b are positive integers, the only possibilities are

a	b
1	15
3	5

5	3
15	1

So the possible x-intercepts are

6	$-\frac{6}{3}$
15	-5
5	$-5/3$
3	-1
1	$-1/3$

and hence the required sum is

$$-5 + -\frac{5}{3} + -1 + -\frac{1}{3}$$

$$= -6 + -\frac{6}{3}$$

$$= -6 - 2$$

$$= \boxed{-8}$$