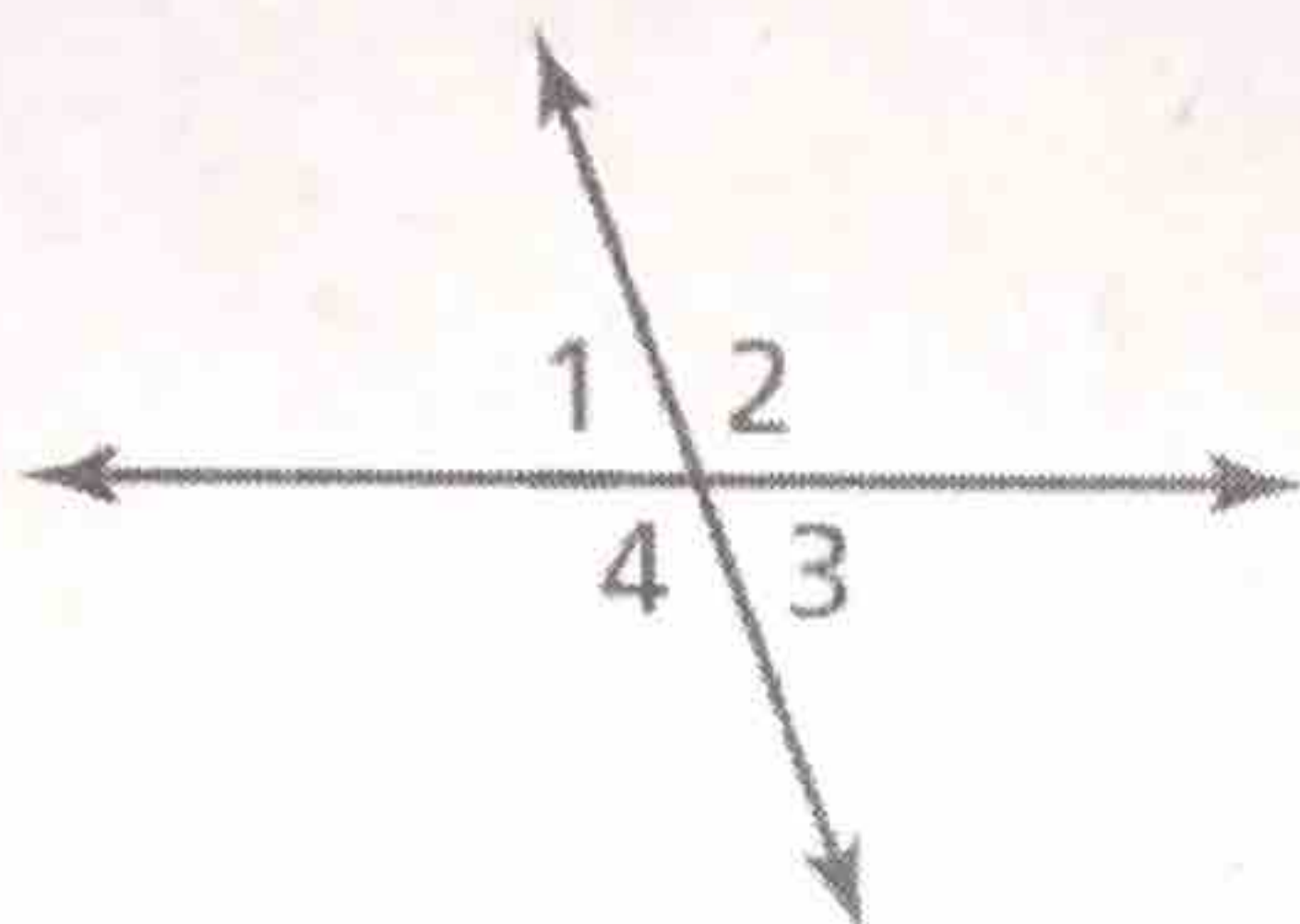


## 7.1 Adjacent and Vertical Angles

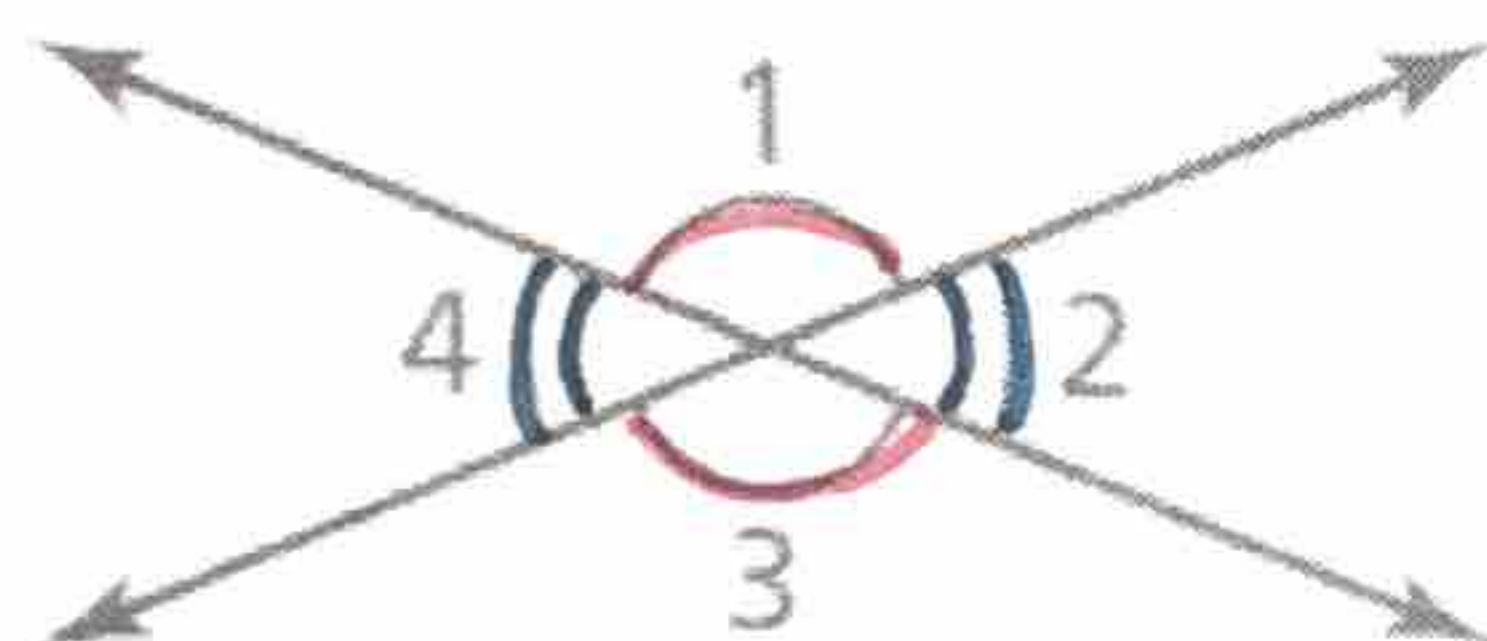
adjacent angles - 2 angles that share a common side and have the same vertex



$\angle 1$  and  $\angle 2$  are adjacent.

$\angle 2$  and  $\angle 4$  are not adjacent.

vertical angles - 2 angles that are opposite, formed by the intersection of 2 lines; vertical angles are always congruent (have the same measure)



$\angle 1$  and  $\angle 3$  are vertical angles.

$\angle 2$  and  $\angle 4$  are vertical angles.

Ex: Name a pair of adjacent angles.

$\angle ABF$  &  $\angle FBE$

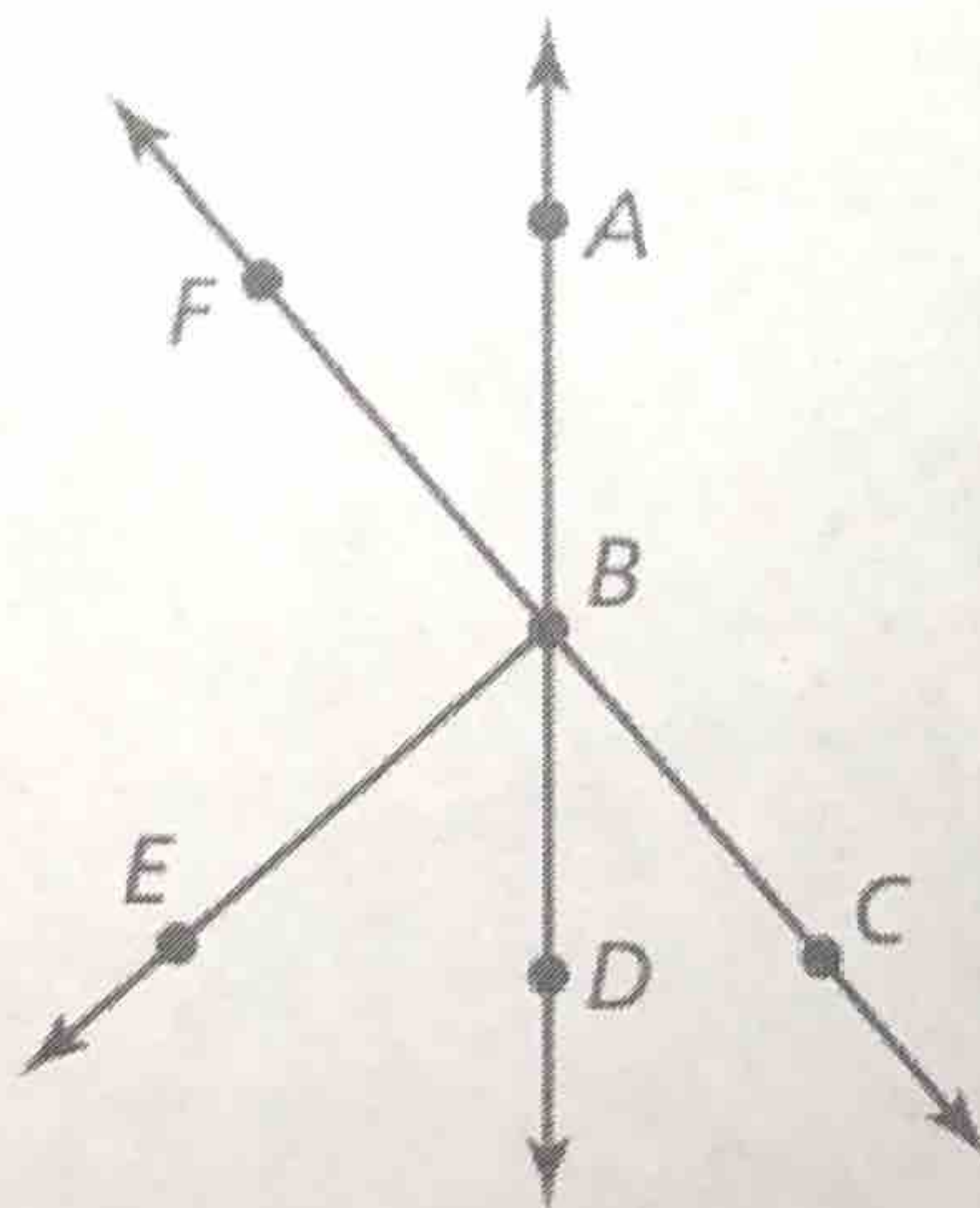
$\angle ABE$  &  $\angle EBD$

$\angle FBD$  &  $\angle DBE$

for example...

Ex: Name a pair of vertical angles.

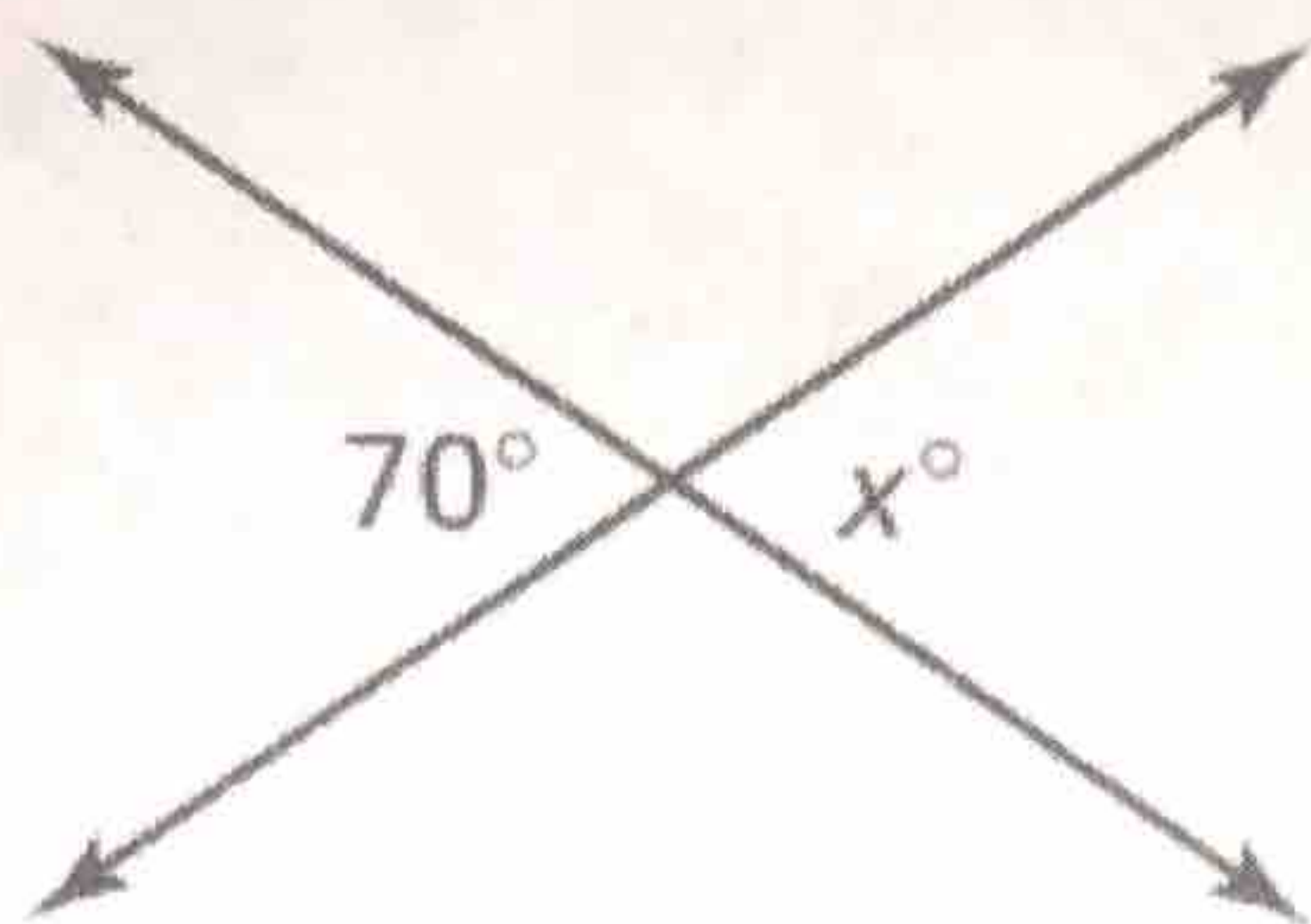
$\angle FBA$  &  $\angle CBD$





Tell whether the angles are adjacent or vertical. Then find the value of  $x$ .

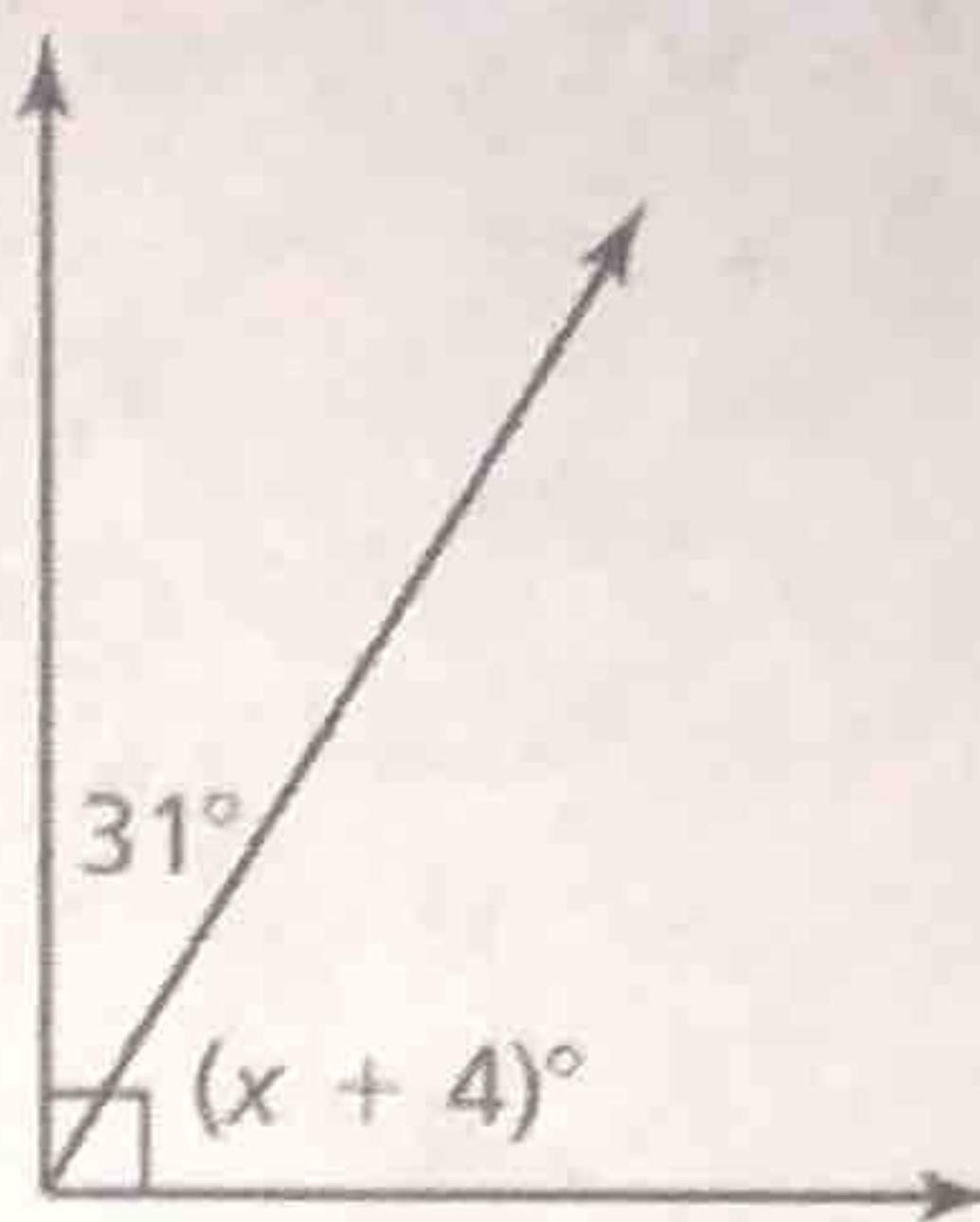
Ex:



Vertical

so  $x = 70$

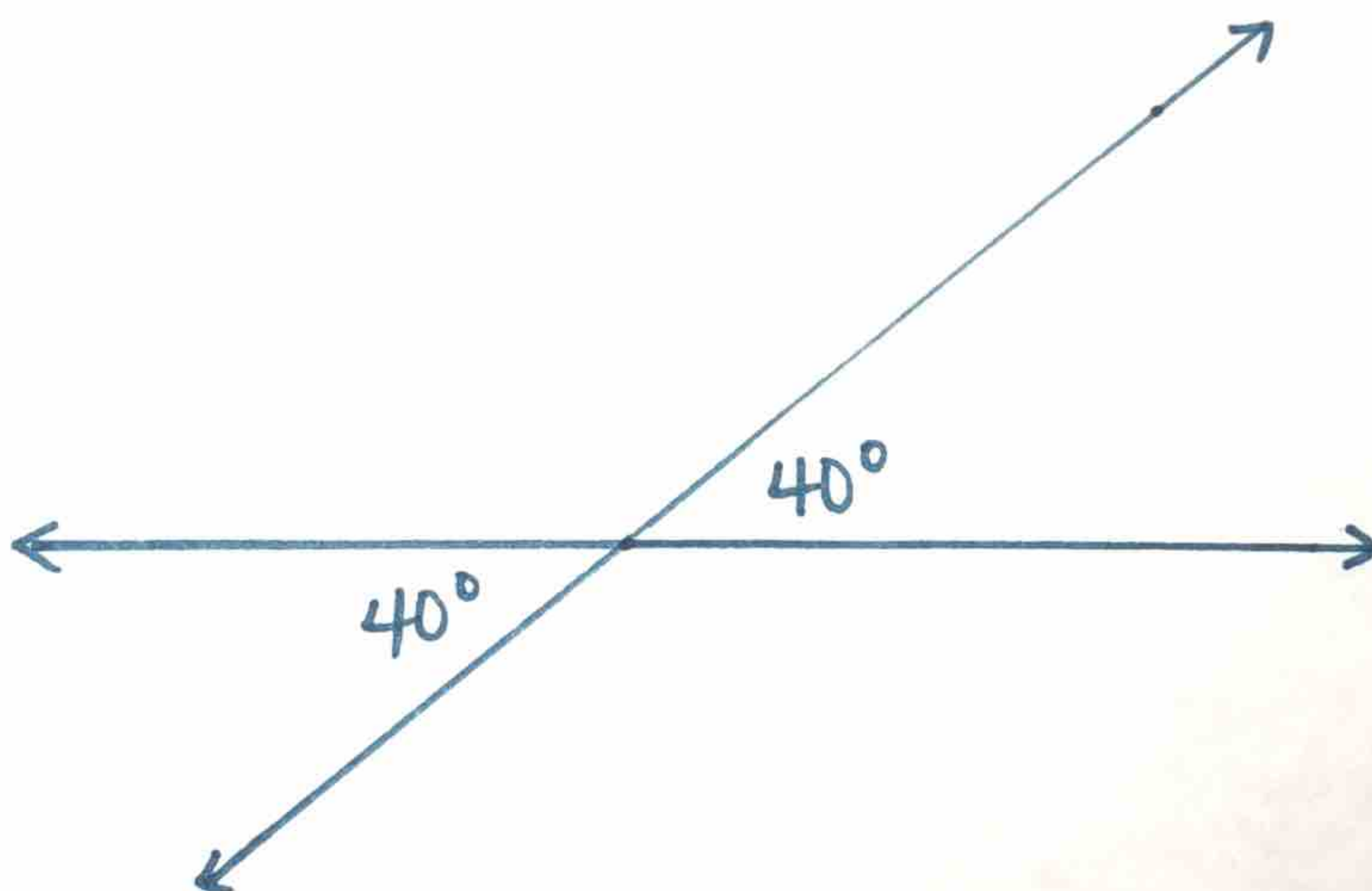
Ex:



Adjacent

$$\begin{aligned} (x+4) + 31 &= 90 \\ x + 35 &= 90 \\ -35 &\quad -35 \\ \hline x &= 55 \end{aligned}$$

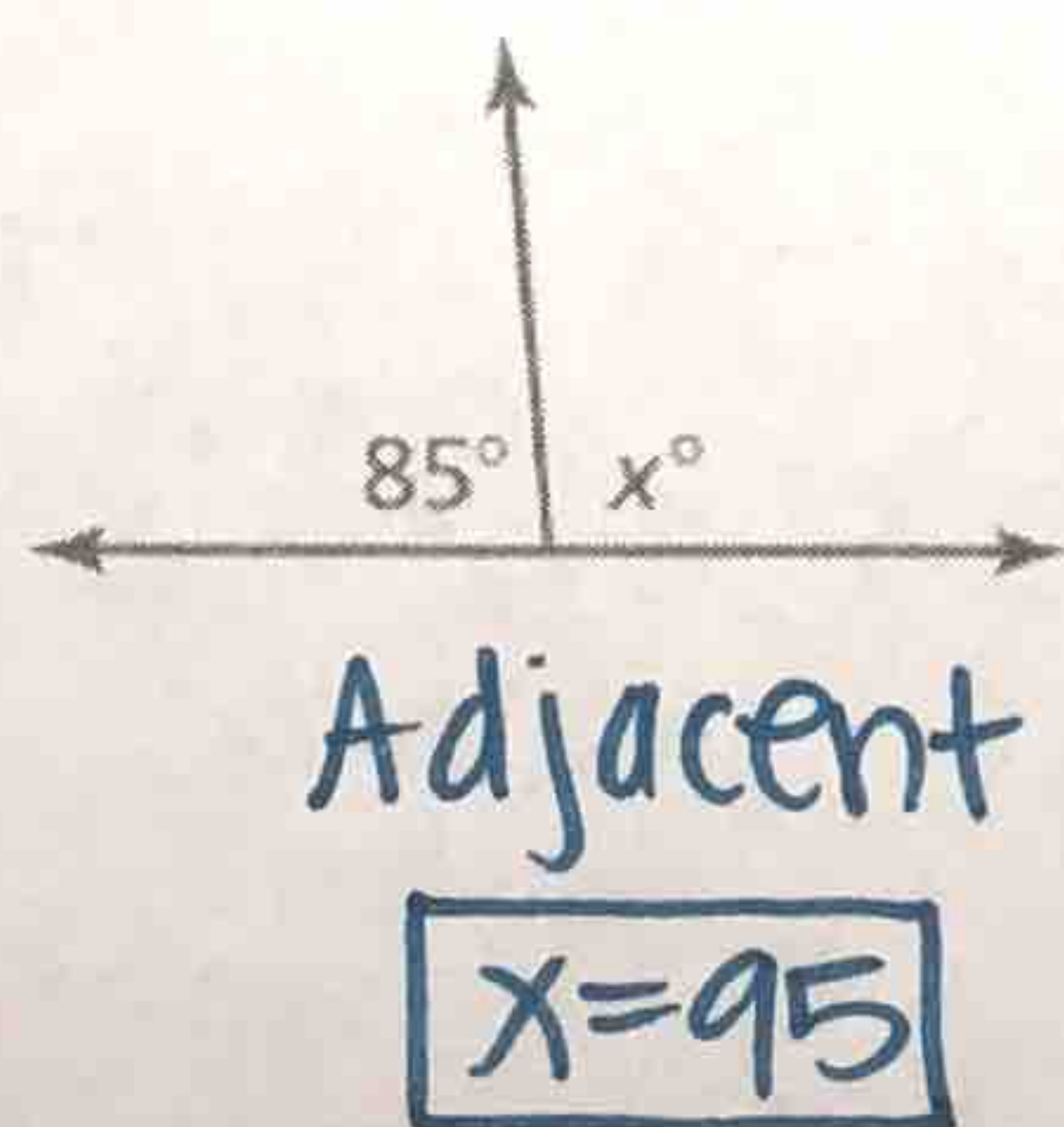
Ex: Draw a pair of vertical angles with a measure of  $40^\circ$ .



Try These:

Tell whether the angles are adjacent or vertical. Then find the value of  $x$ .

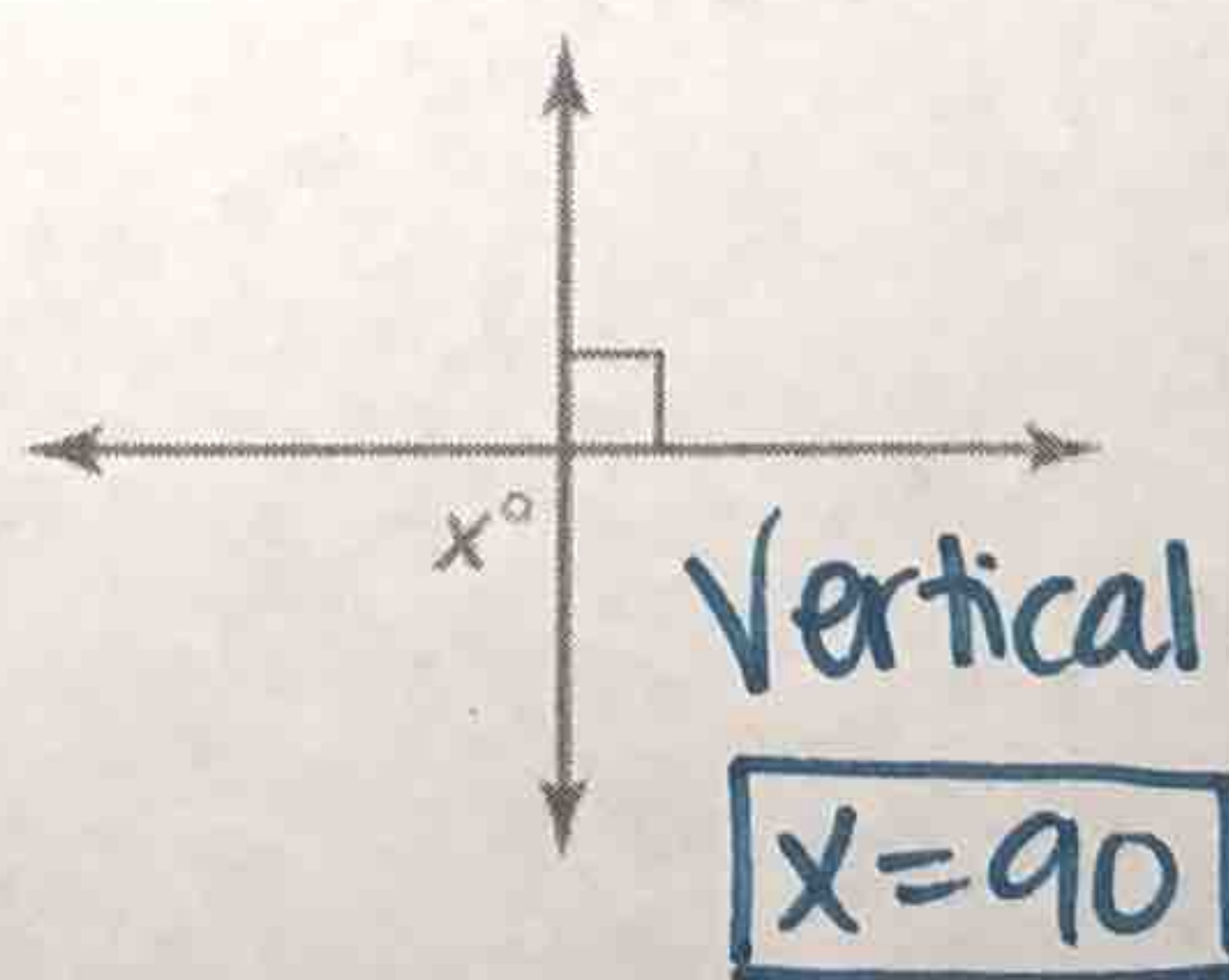
(1)



Adjacent

$x = 95$

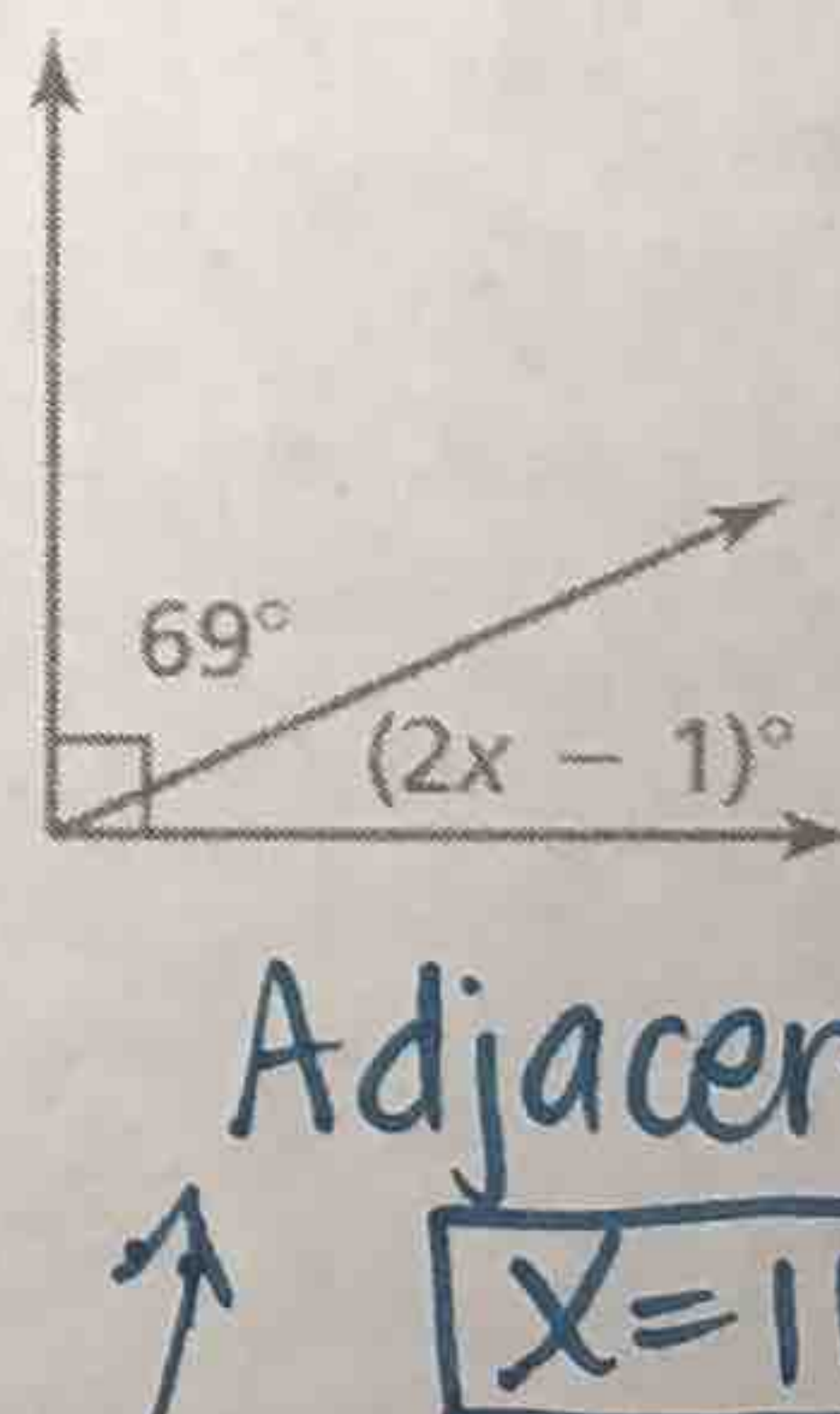
(2)



Vertical

$x = 90$

(3)



Adjacent

$x = 11$

(4) Draw a pair of vertical angles of a measure of  $75^\circ$ .

