Question

The dog will push the boat from the shore:

$$mgS_{dog} = MgS_{boat} \Rightarrow S_{boat} = \frac{mgS_{dog}}{Mg} = \frac{mS_{dog}}{M} = \frac{5 \cdot 8}{20} = 2 \text{ m}.$$

So, the boat will go away from shore by 2 meters. As result the distance from dog to shore will be:

$$d = 20 - 8 + 2 = 14 \text{ m}.$$

He will push the boat because of friction between dog's paws and boat.

Answer: the dog will be 14 meters away from the shore.