Sam chose $x=9$ as the answer; what justification could be used to explain whether Sam is correct or incorrect?

$\frac{3}{4}x = 12$

a) correct, because $12 \times \frac{3}{4} = 9$

b) correct, because $12 \div \frac{3}{4} = 9$

c) incorrect, because $12 \times \frac{3}{4} = 11$

d) incorrect, because $12 \div \frac{3}{4} = 11$